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ABSTRACT

A study examined the system of performance measures and standards approved in each state in response to the Carl D. Perkins Vocational and Applied Technology Act of 1990. An initial letter and two follow-up letters were sent to 54 state directors of vocational education. All states responded with information concerning their approved systems of measures for secondary vocational education programs and 52 responded with information concerning their approved systems of measures for postsecondary programs. Findings indicated that 16 states at the secondary level and 19 at the postsecondary level developed separate systems of performance measures and standards for assessing basic and advanced academic skills. In the assessment of secondary academic skills, high school proficiency exams were a commonly used technique for assessing basic academics; portfolios and course/program completion were used more frequently to assess advanced academics. About two-thirds of the states at the secondary level used something other than nationally recognized techniques for assessing academic skills. Work skill attainment was assessed predominantly by locally selected or developed techniques at both the secondary and postsecondary level. The most frequently reported standard for secondary program completion was 80-90 percent. Locally selected and course/program completion were the most popular techniques for assessing academic skills and competency attainment at the postsecondary level. (Contains 13 references.) (YLB)

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THE OHIO STATE UNIVERSITY

Vocational Education Performance Standards and Assessment Techniques: A Study of Approved State Systems

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FOREWORD

Each state has been required to establish a system of performance measures and standards for use in program evaluation and improvement by the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Information about these approved systems has been limited. A previous report by these authors (McCaslin and Headley, 1993) reported on the measures included in these approved systems. This report addresses the standards and assessment techniques included in these systems.

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INTRODUCTION

The move to adopt performance measures and standards for vocational education can be viewed as a response to the calls for educational reform that have occurred in the last decade in The United States. The use of performance standards in the Job Training Partnership Act (JTPA) programs also influenced the reauthorization of the Carl D. Perkins Vocational Education Act of 1984.

The statewide systems of performance measures and standards mandated by the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (here after referred to as Perkins 1990) were to be approved and in place by September, 1992. As reported by McCaslin and Headley (1993), the states took the mandate seriously. By April of 1993, ninety-six percent of the states reported academic measures and standards for secondary vocational programs, while ninety-two percent reported academic measures and standards for postsecondary programs. For other performance, one hundred percent of the states had approved at least one measure for secondary programs, while ninety-six percent of the states had approved at least one measure for postsecondary programs. More complete information regarding the nature of measures approved by the states for use in assessing vocational education programs was previously reported in A National Study of Approved State Systems of Performance Measures and Standards for Vocational Education (McCaslin and Headley, 1993).

Regarding measures and standards, "the legislative history of the Act indicates that a measure is a description of an outcome, and a standard is the level or rate of that outcome" (Center for Law and Education, 1990). Once a state decided on the types of academic and other performance to assess (measures), it was then necessary to decide on the level of acceptable performance (standards). As noted by Hoachlander, Levesque, and Rahn (1992) and Center for Law and Education (1990), developing standards for performance of vocational education programs was no simple matter. Further, it was necessary for states to select or develop appropriate assessment instruments and procedures.

This report is the result of a national study of approved state systems of performance measures and standards. The sections that follow contain a discussion of the advent of student outcomes assessment in vocational education, a review of the influence of the JTPA experience with performance standards on vocational education programs, development of performance standards, and selection of appropriate assessment techniques.

Student Outcomes Assessment in Vocational Education

Reauthorization of federal vocational education legislation occurred at a time when much national attention was being focused on the relationship between education and the future of the American economy. Concerns over the quality of vocational education were noted, and as the Office of Technology Assessment (OTA) reported, "one manifestation of the concern for quality of vocational programs has been the interest in using outcome measures as indicators of program effectiveness" (OTA, 1989, p. 2). OTA investigated the use of outcome measures, including student labor-market outcomes and student competency, and found that measures of this type were in use in a number of states.

External and internal pressures led to the adoption of student outcomes assessment in vocational education. Bragg and Harmon (1992) described several influences, in postsecondary vocational education that led to the use of student outcomes assessment. Principally, external pressures such as public opinion, federal and state legislation, and certification and accreditation systems required more accountability. Internal pressures, such as faculty and student opinion, and stakeholder concerns, as well as administrative considerations for resource allocation dictated outcomes data be used for program improvement purposes.

Stecher and Hanser (1992), noted that a number of secondary and postsecondary vocational institutions already had accountability systems in place before the implementation of Perkins 1990. The requirements of performance measures and standards have required many of these accountability systems to change. Previously, emphasis had been on evaluation of input indicators such as teacher credentials, size of facilities, teacher/student ratios, and adequacy of equipment. Although the examination of these types of indicators may not have been totally abandoned, the mandated use of performance measures and standards for student outcomes has brought a new focus in assessing the quality of vocational programs. Several changes in focus have been noted as Perkins 1990 requirements were incorporated into state and local accountability systems. Bragg and Harmon (1992) found, "Postsecondary institutions are shifting away from measuring inputs to determine the quality of their services to measuring outcomes such as learner knowledge and skill attainment" (p. 5).

Concerns over the validity of traditional assessment techniques have arisen as local institutions and state agencies moved to adopt student outcomes assessment. The need for expanding existing instruments grew as vocational educators recognized the value of alternative assessments and the need for documenting skills not easily assessed by paper and pencil tests. Therefore, the shift in emphasis in program evaluation has also prompted a reevaluation of how student performance in vocational education programs is assessed. With the increased scrutiny of student assessment in vocational education has come an increased examination of the procedures and practices used for assessing student performance. As pointed out by Whichard and Cobb (1993), there is a close relationship to student assessment, curriculum, and standards. That is, if there is a desire to raise standards, this must be accompanied by curricular changes, which in turn must be coupled with "relevant measures of student achievement" (p. 5).

The move towards performance standards for vocational education based on student outcomes brought with it a need for accurate, reliable and valid techniques for assessing student performance. Two types of student outcomes were to be assessed, academic and occupational. Perkins 1990 not only introduced the use of performance measures and standards in vocational education as national policy, but also legislated the integration of academic and vocational skills.

Assessment of student outcomes in both academic and occupational competence were mandated by Perkins 1990. Though a variety of assessment methods have been available and are continually being developed, the Office of Technology Assessment (1992) reported that ideally all performance assessment techniques display the following characteristics:

- they require students to construct responses rather than select from a set of answers;
- they assess behaviors of interest as directly as possible;
- they are in some cases aimed at assessing group performance rather than individual performance;
- they are criterion-referenced, meaning they provide a basis for evaluating a student's work with reference to criteria for excellence rather than with reference to other student's work;
- in general they focus on the process of problem solving rather than just on the end result;
- carefully trained teachers or other qualified judges are involved in most of the evaluation and scoring; and
- students understand clearly the criteria on which they are judged" (p. 19-20).

The use of student performance assessment in vocational education programs is not new. What is new, however, is the reliance on these assessments as a means of program evaluation. The mandate for performance measures and standards included in Perkins 1990 is one of a number of indicators that the current and future emphasis in evaluation of vocational education programs will center on student outcomes. This emphasis will bring with it the need for carefully developed standards and reliance on accurate and reliable techniques for assessing student performance.

The JTPA Experience with Performance Standards

The precursor for the use of performance standards in vocational education programs was the Job Training Partnership Act. Butler (1988) stated, "in general there has been great consistency over the several years of JTPA, providing a good basis of experience with outcome measures for a national program" (p. 2). Added as an introductory remark to a study evaluating the effects of performance standards on JTPA clients, Dickinson, West, Kogan, Drury, Franks, Schlichtmann, and Vencill (1988) reported that, "many of the findings can be helpful when enacting legislation for other human resource programs" (p. iv). Programs funded under JTPA have been required, since 1984, to be evaluated on the basis on performance standards. These standards were based on client outcomes, such as placement rates, wages and costs per placement.

The strengths of the performance standards for JTPA, in the minds of policy makers are in their use as a mechanism for program accountability, and as a public relations device. In fact, as reported by Dickinson, et al. (1988), the standards were implemented to achieve the following purposes:

- To hold service delivery areas (SDAs) accountable for program outcomes,
- To encourage the achievement of quality employment outcomes,
- To encourage the achievement of cost-effective outcomes,
- To create an incentive for effective management by local program administrators, and
- To foster acceptance of the program by the business community (p. 1).

The findings of the study by Dickinson, et al. (1988) revealed that performance standards had both intended and unintended effects. The unintended effects noted by the study included, in some cases, serving fewer of the hard-to-serve clients and the delivery of less intense programs. However, the study also stated that unintended effects were generally associated with a lack of well defined goals in service delivery areas. The authors concluded that performance standards were having the desired effect on JTPA services and any unintended effects were not large or inevitable.

The measures of performance developed by the Department of Labor for JTPA programs as reported by Butler (1988) for adults included: entered employment rate, cost per entered employment rate, average wage at placement, and welfare entered employment rate. The youth measures included entered employment rate, positive termination rate, and cost per positive termination. The standards were set, "so that about 75% of all SDAs achieve them, and adjusted upward or downward for each new year depending upon the previous year's experience" (Butler, 1988, p. 5). Butler investigated the implications of the JTPA experience with performance standards for vocational education and concluded that:

> JTPA has demonstrated that it is possible to establish a national program substantially driven by clearly-specified, measurable outcomes. Moreover, it is possible to tie those outcomes to funding, not only at the federal and state levels, but even down to the level of actual service delivery area through performance-based contracts with educational institutions or community agencies. As policies which will underlie vocational education are developed, JTPA's experience should encourage planners that a focus on outcomes can be achieved (p. 21).

The data on the effects of performance standards in JTPA programs supported the desire to implement national policy that would hold vocational education programs accountable for student outcomes. Concerning a system of performance standards, Butler (1988) stated, "With appropriate modifications for difference of purpose, it ought to be emulated in large part by revised vocational education legislation" (p. 3). As noted, the JTPA experience with performance standards led the way to their use in vocational education. The following section will present information related to the development of performance standards for use with vocational education programs.

Development of Performance Standards

The U.S. Department of Education defined a measure as "a description of an outcome" and standard as "the level or rate of an outcome" (Federal Register, August 14, 1992, p. 36728). An outcome is defined as "a measurable aspect of student performance" (Hoachlander, Levesque, and Rahn, 1992, p. 42). Taking an example from the Perkins Act, academic skill is an outcome, mathematics achievement on a standardized test is a measure and 80% of the students attaining a score of 80% on the test is a standard.

It should be noted that there is no one right way to develop standards, but in fact a number of ways to develop standards. Standard setting involves judgement. Testing in American Schools: Asking the Right Questions, (OTA, 1992) pointed out that judgements concerning standards should be made by persons who are qualified to make them, meaningful to those who make them and reflecting the purpose for adopting the standards. Perkins 1990 required that each state appoint a Committee of Practitioners which would "review, comment on, and propose revisions to a draft State proposal, which the State board shall develop, for a system of core standards and measures of performance for vocational programs" (sec 115a). This Committee was to act as a check to ensure that the standards selected were satisfactory.

Setting standards for student performance is a challenging task. When standards for performance not only reflect student performance but also that of the vocational program, care must be taken to ensure that they reflect levels of performance actually required in the world of work. What then should be considered in developing standards. Hoachlander, Levesque, and Rahn (1992) describe four sources of information to be used in developing standards. These were: departure from averages, industry standards, best standards, and certification and licensing requirements. Departure from averages involved using information gathered from standardized tests, or from average scores obtained from assessment measures put in place as part of the state's system of measures and standards. Industry standards could be used for those industries that have developed performance standards. Best practices referred to standards that have already been adopted by vocational institutions. Finally, levels of performance on certification or licensing exams could be selected as a standard of performance in some vocational programs.

Regardless of the source of information related to the development of standards, several points must be kept in mind. First, standards must reflect actual levels of performance needed to succeed in the world of work. Second, states would have an opportunity to adjust standards depending on their efficacy in achieving intended results. Finally, standards should be developed through a sound, reasoned approach, and not derived arbitrarily.

Given careful development of a system of performance measures and standards, another step in implementation is the selection or development of appropriate assessment techniques. The following section addresses the development of assessment techniques.

Assessment Techniques

Student assessment has been used to ascertain the level of student performance in vocational programs since its inception. The traditional function of assessment in vocational programs was to certify student competence in an occupational area. While assessment still plays this role, assessment data also provides feedback for teachers in modifying their instruction, and, more recently, for program accountability purposes. If the goal of a vocational program was to prepare persons for the world of work, then the composite picture of what these persons have achieved is viewed as an indicator of program quality.

Recent research has focused on the relationship between assessment and student achievement, and assessment and curricular modification. In particular, with the need for vocational programs to show academic gains for students, assessment techniques for academic skill, in addition to occupational competence, were required to be developed. Traditionally, academic skills have been assessed with standardized tests. Whichard and Cobb (1993) pointed out the deficiencies with these tests. Among these were: standardized tests ignore the process and focus on outcomes only; standardized tests are poor predictors of student potential; the validity of many of the tests has been seriously questioned; and standardized tests only measure a narrow range of knowledge and behavior. Whichard and Cobb suggested four alternative assessments, which included: portfolios, exhibition assessment, dynamic assessment, and curriculum-based assessment. It is proposed that these types of assessment address the questions raised with standardized tests.

There are certainly problems associated with the use of these types of assessment techniques for vocational education students, including the time and cost involved and the general unfamiliarity of educators with these assessments. In addition to these assessments of student performance, Bragg and Harmon (1992) identified a number of techniques already in use by postsecondary vocational education institutions for assessing outcomes. Among these were: standardized tests, exams graded by panels of experts, faculty and student surveys, transcript analyses, and state unemployment and institutional placement records. As reported by Bragg and Harmon (1992), a number of different techniques were in place to measure student outcomes, including standardized tests and alternative assessments of student academic and occupational competence.

Perkins 1990 permitted flexibility in deciding on types of techniques to be used by states in assessing outcomes of vocational students. The thrust of the legislation was not to address methods, but outcomes. States needed to select techniques whose results could be used in satisfying the data needs of the federal government. A number of states had student assessment programs in place for academic achievement. In many of these cases, data collected from these systems could be adapted to satisfy the requirements of the newly implemented systems of measures and standards. In other cases, where no statewide system of student assessment existed, it was necessary to devise or select assessment techniques for the academic competence of vocational students.

PROBLEM STATEMENT

The move to implement a system of performance measures and standards in vocational education is a large undertaking. The states had until September 25, 1992 to implement the systems of standards and measures (Federal Register, August 14, 1992). Many of the states found it necessary to develop new evaluation procedures as a result of the mandates of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Yet, relatively little information was available regarding this process. Hoachlander and Rahn (1992) gathered information in 1991 from the states in an effort to determine the expected makeup of the systems. However, as stated by Hoachlander and Rahn, "The systems actually implemented in fall 1992 may look substantially different, as states continue to develop performance measures and standards" (p. 2). McCaslin and Headley (June 1993) reported findings related to the performance measures that had been approved by the states for use with their statewide systems of performance measures and standards. Information concerning the standards and techniques used in assessing performance was also gathered in the McCaslin and Headley study. This type of information is needed in making comparisons across the states in order to further develop and improve the existing system of performance measures and standards and in meeting the requirements of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990.

The measures of performance, standards for that performance and techniques selected to assess performance all work together in a statewide system of performance measures and standards. Information has been reported concerning the measures approved by the states. In order to get a more complete picture of these systems, information is also needed on the standards and assessment techniques.

PURPOSE AND OBJECTIVES

This study was sponsored by the Graduate School at The Ohio State University through a seed grant for the Comprehensive Vocational Education Program. The purpose of this study was to examine the system of performance measures and standards that had been approved in each state of the United States in response to the Carl D. Perkins Vocational and Applied Technology Act of 1990. The specific objectives addressed in this paper were:

1. To determine what standards for academic performance had been approved in each state.

2. To determine what types of assessment techniques had been approved for academic performance in each state.

3. To determine what standards for other performance had been approved in each state.

4. To determine what types of assessment techniques had been approved for other performance in each state.

METHODOLOGY

Descriptive-survey and content analysis research methods were used in this study. The names and addresses of the 54 state directors of vocational education were used to generate the population for this investigation. For the purposes of this study, a state was defined as including all 50 states in the United States and the District of Columbia, Puerto Rico, Guam, and The Virgin Islands.

An initial letter (see Appendix A) was sent to each state director on November 24, 1992 requesting documents describing the system of performance measures and standards that had been approved by their state board for vocational education. This strategy was used to minimize the amount of time and energy required to provide the information. Approximately four weeks later, a follow up letter, containing the original request, was sent to the 19 state directors that had not responded. A third and final follow-up letter was sent on February 1, 1993 to the remaining seven state directors that had not responded. On March 3, 1993 phone calls were made to the remaining five state directors from which no response had been received. As of April 15, 1993, all of the states (100%) had responded with information concerning their approved systems of measures for secondary vocational education programs and fifty-two (96%) had responded with information concerning their approved systems of measures for postsecondary programs. Two states (Iowa and The Virgin Islands) indicated that their system of measures and standards had not been approved by their state boards. Additionally, Georgia and Arkansas did not report their system of postsecondary performance measures and standards.

Once the documents had been reviewed, their content was analyzed. The analysis resulted in a listing, by states, of the standards that the states had adopted, using the categories listed in section 115 of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990: (a) basic academic skill, (b) advanced academic skill, (c) competency attainment, (d) work skill attainment, (e) retention/completion, (f) placement, (g) service to special populations, and (h) other measures. In addition to the standards, techniques used to assess performance were identified for each category listed above.

A summary sheet was developed for each state, presenting the data on adopted measures. On March 12, 1993, the summary sheets were mailed to the state directors of vocational education (a copy of the summary sheet, instructions and the cover letter are contained in Appendix B). Personnel from each state were asked review, verify and amend the listing as necessary. When discrepancies occurred, a further review of the documents was carried out. If necessary, a follow up call was made to the state director of vocational education's office for additional clarification.

FINDINGS

Secondary Vocational Education Standards

This section reports the secondary vocational education standards approved by states according to the major categories required by The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990. These categories included: academic and other performance.

Academic Standards

Academic standards were categorized in two groups: basic and advanced. Fifty-eight percent of the states reported the use of one set of measures and standards for both basic and advanced academics (McCaslin and Headley, 1993). Table 1 presents information concerning the number of states with approved standards for these measures. Standards were reported for the academic areas of reading, mathematics, language, science and other academic skills. The most frequently reported basic academic standards were in mathematics (85%), reading (80%), and language (77%). The most frequently reported advanced academic standards were in mathematics (76%), reading (65%), and language (65%).

Table 1

A Summary of Approved State Standards for Academic Skills (Secondary) (N=54)

Academic Skill	f	%
Basic		
Reading	43	80
Language	40	77
Mathematics	46	85
Science	19	35
Other	24	44
Advanced		
Reading	35	65
Language	35	65
Mathematics	41	76
Science	22	41
Other	23	43

In addition to examining the standards which had been approved by the states for use with academic performance measures, this study also examined the types of techniques used in assessing performance. Four major types of techniques were identified: state developed, local selected or developed, nationally recognized, and other. State developed techniques included high school proficiency exams (e.g., The Ohio Ninth Grade Proficiency Test), and other state assessment programs (e.g., The Louisiana Education Assessment Program). Local developed techniques were those developed or selected by a local education agency. In some cases the state suggested some nationally recognized instrument for possible use by local education agencies. In other states, the choice of technique was left totally to the local agency. Nationally recognized techniques were those developed for use across states and in many cases had national norms (e.g., Iowa Test of Basic Skills). Other techniques included gain or progress in a course/program, or completion of course work.

A number of states reported the use of more than one assessment technique for each of the academic measures. For assessing reading, twelve states reported the use of more than one technique. Eleven states reported using more than one assessment technique for mathematics; ten states reported the use of more than one technique for language, seven states reported the use of more than assessment technique for science, and six states reported the use of more than one technique for assessing other academic skills.

Reading

In the academic area of reading, forty-three states reported having approved standards for basic reading performance and thirty-five states reported approved standards for advanced reading performance (see Table 1). Information concerning the techniques used to assess reading performance and the standards for basic and advanced reading performance is contained in this section.

Basic Reading Performance. Table 2 presents information on the techniques used to assess basic reading performance. About one-half (47%) of the states reported the use of state developed assessment techniques. Thirty-seven percent of the states reported the use of nationally recognized techniques. Nine different instruments were reported to be in use, with the Iowa Test of Basic Skills, Test of Adult Proficiency, Comprehensive Test of Basic Skills, Stanford Achievement Test, and Test of Adult Basic Education being used by more than one state. Over one-fourth of the states (28%) reported the use of local developed or selected techniques, while 12% reported using other techniques, such as course completion or General Educational Development (GED) criteria.

Standards approved for use with measures of basic reading performance are displayed in Table 3. Of those states reporting the use of state developed assessment techniques, the percentage of students receiving a passing score was the most frequently reported (50%) standard. Of the states reporting the use of a local selected technique 58% used gain scores, while the most frequently reported standard for those using a nationally recognized technique were gain scores

(37%). Over three-fourths (80%) of the states which employed other techniques for assessing basic reading performance reported course or program completion.

Advanced Reading Performance. Table 4 presents information on the techniques used to assess advanced reading performance. One-third (34%) of the states reported the use of state developed assessment techniques. Thirty-seven percent of the states reported the use of nationally recognized techniques. Ten different instruments were reported to be in use; with the Stanford Achievement Test and the Test of Adult Basic Education being used by more than one state. Another one-third of the states (34%) reported the use of local developed or selected techniques, while one-fourth (25%) reported using other techniques, such as course/program completion and portfolios.

Standards for techniques approved for use with measures of advanced reading performance are displayed in Table 5. Of those states reporting the use of state developed assessment techniques, the most frequently reported standards were percentage of students receiving a passing score (33%) and gain scores (33%). Of the states reporting the use of a local selected technique 68% used gain scores. The most frequently reported standard for those using a nationally recognized technique was also gain scores (46%). Two-thirds (67%) of the states which employed other techniques for assessing advanced reading performance reported using a course/program completion standard.

Table 2

Techniques Used to Assess Basic Reading Performance (Secondary) (N=43)

Assessment Techniques		f	%
State Developed		20	47
State High School Proficiency Exam	10		
Other State Developed Assessment	10		
Local Selected or Developed		12	28
Nationally Recognized		16	37
Iowa Test of Basic Skills	3		
Test of Adult Basic Education	3		
Test of Adult Proficiency	2		
Comprehensive Test of Basic Skills	2		
Stanford Achievement Test	2		
Metropolitan Achievement Test	1		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
Gates-MacGinite Reading Test	1		
Other		5	12
Course/Program Completion	4		
GED Criteria	1		

Table 3

Standards for Techniques Used to Assess Basic Reading Performance (Secondary) (N=43)

Type of Techniques and Standards	f	%
State Developed Techniques	20	
Standards		
% of Students Passing	10	50
Grade Level/Norm Reference Score	2	10
Gain Scores	3	15
Comparison with all Students	3	15
Local Program Determined	1	5
To be Determined at State Level	1	5
Local Selected or Developed Techniques	12	
Standards		
Grade Level/Norm Reference Score	1	8
Gain Scores	7	58
Local Program Determined	4	33
Nationally Recognized Techniques	16	
Standards		
National Norm Score	4	25
Gain Scores	6	37
Comparison with all Students	2	13
Local Program Determined	1	6
To be Determined at State Level	1	6
Not Indicated	2	13
Other Techniques	5	
Standards		
Gain or Progress	1	20
Course/Program Completion	4	80

Table 4

Techniques Used to Assess Advanced Reading Performance (Secondary) (N=35)

Assessment Techniques		f	%
State Developed		12	34
State High School Proficiency Exam	2		
Other State Developed Assessment	10		
Local Selected or Developed		12	34
Nationally Recognized		13	37
Iowa Test of Basic Skills	1		
Test of Adult Proficiency	1		
Test of Adult Basic Education	3		
Comprehensive Test of Basic Skills	1		
Metropolitan Achievement Test	1		
Stanford Achievement Test	2		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
Gates-MacGinite Reading Test	1		
VTECS Item Banks	1		
Other		9	25
Course/Program Completion	6		
Portfolios	2		
Grade Advancement	1		

Table 5

Standards for Techniques Used to Assess Advanced Reading (Secondary) (N=35)

Type of Techniques and Standards	f		%
State Developed Techniques		12	
Standards			
% of Students Passing	4		33
Grade Level/Norm Reference Score	1		8
Gain Scores	4		33
Comparison with all Students	2		17
To be Determined at State Level	1		8
Local Selected or Developed Techniques		12	
Standards			
Grade Level/Norm Reference Score	2		16
Gain Scores	8		68
Local Program Determined	2		16
Nationally Recognized Techniques		13	
Standards			
National Norm Score	3		23
Gain Scores	6		46
Comparison with all Students	1		8
Local Program Determined	1		8
To be Determined at State Level	1		8
Not Indicated	1		8
Other Techniques		9	
Standards			
Gain or Progress	1		11
Course/Program Completion	6		67
Not Indicated	2		22

Language

Forty states reported assessing basic language performance, while thirty-five states reported assessing advanced academic performance (see Table 1). This section contains information regarding the techniques and standards used to assess language performance.

Basic Language Performance. Table 6 presents information on the techniques used to assess basic language performance. About one-half (47%) of the states reported the use of state developed assessment techniques. One-third (33%) of the states reported the use of local selected or developed techniques. About one-third of the states (30%) reported the use of nationally recognized techniques. Eight different instruments were reported to be in use, with the Iowa Test of Basic Skills, Test of Adult Basic Education, and Comprehensive Test of Basic Skills being used in more than one state. Ten percent of the states measuring basic language performance reported using course/program completion for the other assessment technique.

Table 6

Techniques Used to Assess Basic Language Performance (Secondary) (N=40)

Assessment Techniques		f	%
State Developed		18	47
State High School Proficiency Exam	10		
Other State Developed Assessment	8		
Local Selected or Developed		13	33
Nationally Recognized		12	30
Iowa Test of Basic Skills	2		
Test of Adult Proficiency	1		
Test of Adult Basic Education	3		
Comprehensive Test of Basic Skills	2		
Metropolitan Achievement Test	1		
Stanford Achievement Test	1		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
Other		4	10
Course/Program Completion	4		

Standards approved for use with measures of basic language performance are displayed in Table 7. Of those states reporting the use of state developed techniques, the percentage of students receiving a passing score was the most frequently reported (50%) standard. Gain scores were the most frequently (69%) used standard for local selected or developed techniques. Gain scores were also the most frequently reported (39%) standard for nationally recognized assessment techniques. An additional 30% of these states reported using national norm scores as standards. All of the states reporting other techniques for assessing basic language used a course/program completion standard.

Advanced Language Performance. Table 8 contains information on the techniques used to assess advanced language performance. Forty-three percent of the states used a state developed technique. About one-third of the states used either a local selected or developed technique (34%), or a nationally recognized technique (29%). Nine different instruments were being used by those states using nationally recognized assessment techniques, with only the Test of Adult Basic Education being used by more than one state. Twenty-three percent of the states assessing advanced language performance used other assessment techniques such as portfolios and course completion.

Standards approved for use with measures of advanced language performance are displayed in Table 9. Of those using state developed assessment techniques, the most frequently used standards were percent of students passing (30%) and gain scores (30%). Among states using local selected or developed techniques, 84% reported the use of a standard involving a gain score. The most frequently reported standards for states using nationally recognized techniques were national norm scores (30%) and gain scores (30%). Program/course completion was used by 86% of the states reporting the use of other assessment techniques for advanced language performance.

Table 7

Standards for Techniques Used to Assess Basic Language Performance (Secondary) (N=40)

Type of Techniques and Standards	f	%
State Developed Techniques	18	
Standards		
% of Students Passing	9	50
Grade Level/Norm Reference Score	1	5
Gain Scores	3	17
Comparison with all Students	3	17
Local Program Determined	1	5
To be Determined at State Level	1	5
Local Selected or Developed Techniques	13	
Standards		
Grade Level/Norm Reference Score	1	8
Gain Scores	9	69
Local Program Determined	3	23
Nationally Recognized Techniques	13	
Standards		
National Norm Score	4	30
Gain Scores	5	39
Comparison with all Students	1	8
Local Program Determined	2	15
To be Determined at State Level	1	8
Other Techniques	4	
Standard		
Course/Program Completion	4	100

Table 8

Techniques Used to Assess Advanced Language Performance (Secondary) (N= 35)

Assessment Techniques		f	%
State Developed		15	43
State High School Proficiency Exam	3		
Other State Developed Assessment	12		
Local Selected or Developed		12	34
Nationally Recognized		10	29
Iowa Test of Basic Skills	1		
Test of Adult Proficiency	1		
Test of Adult Basic Education	2		
Comprehensive Test of Basic Skills	1		
Metropolitan Achievement Test	1		
Stanford Achievement Test	1		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
VTECS Item Banks	1		
Other		8	23
Course/Program Completion	6		
Portfolios	2		

Table 9

Standards for Techniques Used to Assess Advanced Language Performance (Secondary) (N=35)

Type of Techniques and Standards		f	%
State Developed Techniques	13		
Standards			
% of Students Passing		4	30
Grade Level/Norm Reference Score		1	8
Gain Scores		4	30
Comparison with all Students		2	16
Local Program Determined		1	8
To be Determined at State Level		1	8
Local Selected or Developed Techniques	12		
Standards			
Grade Level/Norm Reference Score		1	8
Gain Scores		10	84
Local Program Determined		1	8
Nationally Recognized Techniques	10		
Standards			
National Norm Score		3	30
Gain Scores		3	30
Comparison with all Students		2	20
Local Program Determined		1	10
To be Determined at State Level		1	10
Other Techniques	7		
Standards			
Course/Program Completion		6	86
Not Indicated		1	14

Mathematics

More states reported the assessment of basic and advanced mathematics performance than any other academic skill. Forty-six states reported assessing basic mathematics performance, while forty-one states reported assessing advanced mathematics performance (See Table 1). Information concerning the techniques and standards used in assessing mathematics performance is contained in this section.

Basic Mathematics Performance. Table 10 displays information regarding the techniques used in assessing basic mathematics performance. About one-half (48%) of the states reported the use of state developed assessment techniques. Almost one-third (30%) of the states reported the use of local selected or developed techniques. Thirty percent of the states reported the use of nationally recognized assessment techniques. Of the eight instruments identified, the Iowa Test of Basic Skills, Test of Adult Proficiency, Test of Adult Basic Education, Comprehensive Test of Basic Skills, and Stanford Achievement Test were all used by more than one state. Nine percent of the states used course/program completion as a technique for assessing basic mathematics performance.

Table 10

Techniques Used to Assess Basic Mathematics Performance (Secondary) (N=46)

Assessment Techniques		f	%
State Developed		22	48
State High School Proficiency Exam	10		
Other State Developed Assessment	12		
Local Selected or Developed		14	30
Nationally Recognized		14	30
Iowa Test of Basic Skills	3		
Test of Adult Proficiency	2		
Test of Adult Basic Education	2		
Comprehensive Test of Basic Skills	2		
Metropolitan Achievement Test	1		
Stanford Achievement Test	2		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
Other		4	9
Course/Program Completion	4		

The standards reported to be in use for basic mathematics performance are presented in Table 11. The percent of students passing was the most frequently used standard for state developed techniques, with almost one-half of the states (45%) using this type of standard. Among the states using local selected or developed assessment techniques, 87% reported the using gain scores as a standard. Twenty-nine percent of the states using nationally recognized techniques used a national norm as the standard, although 36% did not indicate a standard. All of the states using other techniques for assessing basic mathematics performance reported the use of a standard of course or program completion.

Table 11

Standards for Techniques Used to Assess Basic Mathematics Performance (Secondary) (N=46)

Type of Techniques and Standards	f	%
State Developed Techniques	22	
Standards		
% of Students Passing	10	45
Grade Level/Norm Reference Score	2	9
Gain Scores	4	18
Comparison with all Students	4	18
Local Program Determined	1	5
To be Determined at State Level	1	5
Local Selected or Developed Techniques	16	
Standards		
Grade Level/Norm Reference Score	1	7
Gain Scores	14	87
Local Program Determined	1	7
Nationally Recognized Techniques	14	
Standards		
National Norm Score	4	29
Gain Scores	3	21
Comparison with all Students	2	14
Not Indicated	5	36
Other Techniques	4	
Standard		
Course/Program Completion	4	100

Advanced Mathematics Performance. Information pertaining to the techniques used by states in assessing advanced mathematics performance is contained in Table 12. Over one-third (37%) of the states reported the use of state developed assessment techniques. Similarly, about one-third (32%) reported the use of local selected and developed assessment techniques. Twenty-seven percent of the states reported using a nationally recognized instrument, with nine different instruments identified. Of these, only the Test of Adult Basic Education and Stanford

Achievement Test were reported by more than one state. Slightly more than one-fourth (27%) of the states reported the use of other assessment techniques. Course/program completion was the most frequently reported of these other techniques.

Table 12

Techniques Used to Assess Advanced Mathematics Performance (Secondary) (N=41)

Assessment Techniques		f	%
State Developed		15	37
State High School Proficiency Exam	3		
Other State Developed Assessment	12		
Local Selected or Developed		13	32
Nationally Recognized		11	27
Iowa Test of Basic Skills	1		
Test of Adult Proficiency	1		
Test of Adult Basic Education	2		
Comprehensive Test of Basic Skills	1		
Metropolitan Achievement Test	1		
Stanford Achievement Test	2		
Stanford 8 3R Battery	1		
ACT Work Keys	1		
VTECS Item Banks	1		
Other		11	27
Course/Program Completion	8		
Portfolios	2		
Grade Advancement	1		

Table 13 contains information on the standards approved for use in assessing advanced mathematics performance. Percent of students passing (31%) and gain scores (25%) were the most frequently used standards for those states reporting the use of a state developed assessment technique. Gain scores were the most frequently reported standards for both local selected or developed (71%) and nationally recognized assessment techniques (55%). Of those states using other techniques, 64% used a standard of course/program completion.

Table 13

Standards for Techniques Used to Assess Advanced Mathematics Performance (Secondary) (N=41)

Type of Techniques and Standards	f	%
State Developed Techniques	16	
Standards		
% of Students Passing	5	31
Grade Level/Norm Reference Score	2	13
Gain Scores	4	25
Comparison with all Students	3	19
Local Program Determined	1	6
To be Determined at State Level	1	6
Local Selected or Developed Techniques	14	
Standards		
Grade Level/Norm Reference Score	1	7
Gain Scores	10	71
Local Program Determined	3	22
Nationally Recognized Techniques	11	
Standards		
National Norm Score	3	27
Gain Scores	6	55
Comparison with all Students	2	18
Other Techniques	11	
Standards		
Gain or Progress	1	9
Course/Program Completion	7	64
Not Indicated	3	27

Science

Nineteen states reported the assessment of basic science performance, while twenty states reported the assessment of advanced science performance (See Table 1). Information regarding the assessment techniques and standards for use with measures of basic and advanced science performance is contained in this section.

Basic Science Performance. Information regarding the techniques used to assess basic science performance is contained in Table 14. Over one-half (58%) of the states reported the use of state developed techniques. About one-third (32%) of the states reported using local selected or developed techniques. Twenty-one percent of the states reported the use of nationally recognized techniques. No one instrument was reported as being used in more than one state. Twenty-one percent of the states also reported for the other assessment technique course/program completion.

Table 14

Techniques Used to Assess Basic Science Performance (Secondary) (N=19)

Assessment Techniques		f	%
State Developed		11	58
State High School Proficiency Exam	5		
Other State Developed Assessment	6		
Local Selected or Developed		6	32
Nationally Recognized		4	21
Iowa Test of Basic Skills	1		
Comprehensive Test of Basic Skills	1		
Stanford Achievement Test	1		
Stanford 8 3R Battery	1		
Other		4	21
Course/Program Completion	4		

Standards approved for use with measures of basic science performance are depicted in Table 15. Percent of students passing was the most frequently used standard (50%) for those states reporting the use of state developed assessment techniques. Eighty-six percent of the states reported the use of gain score standards for local selected or developed assessment techniques. Fifty percent of the states reporting the use of nationally recognized assessment techniques also used a gain score standard. All of the states using other techniques reported a course/program completion standard.

Table 15

Standards for Techniques Used to Assess Basic Science Performance (Secondary) (N=19)

Type of Techniques and Standards	f		%
State Developed Techniques		12	
Standards			
% of Students Passing	6		50
Grade Level/Norm Reference Score	1		8
Gain Scores	2		17
Comparison with all Students	2		17
To be Determined at State Level	1		8
Local Selected or Developed Techniques		7	
Standards			
Gain Scores	6		86
Local Program Determined	1		14
Nationally Recognized Techniques		4	
Standards			
National Norm Score	1		25
Gain Scores	2		50
Not Indicated	1		25
Other Techniques		4	
Standard			
Course/Program Completion	4		100

Advanced Science Performance. Table 16 presents information concerning the techniques used to assess advanced science performance. About one-half (45%) of the states reported the use of a state developed assessment technique. Twenty-seven percent of the states reported the use of local selected or developed techniques, while only 14% reported the use of a nationally recognized assessment. No one test was reported as being used in more than one state. About one-third (32%) of the states reported the use of other assessment techniques.

Standards used in assessing advanced science performance are presented in Table 17. Percent of students passing was the most frequently reported standard (36%) for use with state developed assessment techniques, followed by gain scores (27%). Gain scores were the most frequently reported standard for use with local selected (86%) and nationally recognized techniques (67%). Of those states reporting the use of other assessment techniques, 86% reported the use of a standard of course/program completion.

Table 16

Techniques Used to Assess Advanced Science Performance (Secondary) (N=22)

Assessment Techniques	f		%
State Developed		10	45
State High School Proficiency Exam	3		
Other State Developed Assessment	7		
Local Selected or Developed		6	27
Nationally Recognized		3	14
Comprehensive Test of Basic Skills	1		
Stanford Achievement Test	1		
VTECS Item Banks	1		
Other		7	32
Course/Program Completion	6		
Portfolios	1		

Table 17

Standards for Techniques Used to Assess Advanced Science Performance (Secondary) (N=22)

Type of Techniques and Standards	f	%
State Developed Techniques	11	
Standards		
% of Students Passing	4	36
Grade Level/Norm Reference Score	1	9
Gain Scores	3	27
Comparison with all Students	1	9
Local Program Determined	1	9
To be Determined at State Level	1	9
Local Selected or Developed Techniques	7	
Standards		
Gain Scores	6	86
Local Program Determined	1	14
Nationally Recognized Techniques	3	
Standards		
Gain Scores	2	67
Not Indicated	1	33
Other Techniques	7	
Standards		
Course/Program Completion	6	86
Not Indicated	1	14

Other Academic Performance

In addition to reading, language, mathematics, and science, other academic skills were assessed by a number of states. Among these academic skill areas were social studies, problem solving, and thinking skills. Twenty-four states assessed other basic academic skills, while twenty-three states assessed other advanced academic skills (See Table 1). This section contains information on the techniques and standards used to assess other academic performance.

Other Basic Academic Performance. Information concerning techniques used to assess other basic academic performance is contained in Table 18. Forty-two percent of the states reported the use of state developed assessment techniques. Forty-two percent also reported the use of local selected or developed techniques, while only eight percent reported the use of nationally recognized assessment techniques. None of these states reported using the same test. Over one-third (38%) of the states reported the use of course/program completion as the other assessment technique.

Table 18

Techniques Used to Assess Other Basic Academic Performance (Secondary) (N=24)

Assessment Techniques		f	%
State Developed		10	42
State High School Proficiency Exam	6		
Other State Developed Assessment	4		
Local Selected or Developed		10	42
Nationally Recognized		2	8
Comprehensive Test of Basic Skills	1		
ACT Work Keys	1		
Other		9	38
Course/Program Completion	9		

Standards for use in assessing other basic academic performance are presented in Table 19. Of the states using state developed assessment techniques, 55% reported the use of percent of students passing, which was the most frequently reported standard. Sixty percent of the states using local selected or developed assessment techniques reported a gain score standard. One-half of the states using a nationally recognized assessment technique reported using a national norm as a standard, while 78% of those using other assessment techniques reported using a course/program completion standard.

Table 19

Standards for Techniques Used to Assess Other Basic Academic Performance (Secondary) (N=24)

Type of Techniques and Standards	f		%
State Developed Techniques		11	
Standards			
% of Students Passing	6		55
Grade Level/Norm Reference Score	1		9
Gain Scores	1		9
Comparison with all Students	2		18
To be Determined at State Level	1		9
Local Selected or Developed Techniques		10	
Standards			
Grade Level/Norm Reference Score	1		10
Gain Scores	6		60
Local Program Determined	3		30
Nationally Recognized Techniques		2	
Standards			
National Norm Score	1		50
Not Indicated	1		50
Other Techniques		9	
Standards			
Gain or Progress	1		11
Course/Program Completion	7		78
Not Indicated	1		11

Other Advanced Academic Performance. Techniques used to assess other advanced academic performance are displayed in Table 20. About one-third (35%) of the states used state developed assessment techniques. Twenty-six percent used a local selected or developed technique, while only 13% reported the use of a nationally recognized assessment technique. However, none of these states reported the use of the same instrument. About one-third (30%) of the states reported the use of other assessment techniques, either portfolios or course/program completion.

Table 20

Techniques Used to Assess Other Advanced Academic Performance (Secondary) (N=23)

Assessment Techniques	f		%
State Developed		8	35
State High School Proficiency Exam	2		
Other State Developed Assessment	6		
Local Selected or Developed		9	26
Nationally Recognized		3	13
Comprehensive Test of Basic Skills	1		
ACT Work Keys	1		
VTECS Item Banks	1		
Other		7	30
Course/Program Completion	6		
Portfolios	1		

Table 21 presents information on the standards used in assessing other advanced academic performance. The most frequently reported standard for states using state developed assessment techniques was percent of students passing (44%). Sixty percent of the states using a local selected or developed technique reported the use of a gain score standard. The states using standards with nationally recognized techniques were equally divided between a national norm, a gain score, and a standard not indicated. Fifty-seven percent of states using other assessment techniques used a course/program completion standard.

Table 21

Standards for Techniques Used to Assess Other Advanced Academic Performance (Secondary) (N=23)

Type of Techniques and Standards	f		%
State Developed Techniques		9	
Standards			
% of Students Passing	4		44
Grade Level/Norm Reference Score	1		11
Gain Scores	2		22
Comparison with all Students	1		11
To be Determined at State Level	1		11
Local Selected or Developed Techniques		10	
Standards			
Grade Level/Norm Reference Score	1		10
Gain Scores	6		60
Local Program Determined	3		30
Nationally Recognized Techniques		3	
Standards			
National Norm Score	1		33
Gain Scores	1		33
Not Indicated	1		33
Other Techniques		7	
Standards			
Gain or Progress	1		14
Course/Program Completion	4		57
Not Indicated	2		29

Standards for Other Performance

Standards for other performance were categorized into one of five groups: competency attainment, work skill attainment, completion, placement, and high school graduation rates. These groups correspond with the requirements for performance measures and standards outlined by the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. States were not limited to adopting only the measures and standards outlined in the legislation. However, they were instructed by law to include at least one of the previously mentioned measures of performance (with corresponding standards), regardless of the number or type of additional measures approved. Since the Perkins Act required states to offer incentives and adjustments for service to special populations, this study also examined any additional measures and standards dealing with level of service to those individuals and gender equity.

Information regarding the number of states approving standards for other measures of performance is presented in Table 22. The most frequently reported measures of other performance were work skill attainment (72%) and any placement (61%). Additional information concerning the measures of other performance may be found in A National Study of Approved State Systems of Performance Measures and Standards for Vocational Education (McCaslin and Headley, 1993). Competency attainment was generally defined by the states as rate of acquisition of basic employability skills. Work skill attainment was defined as the rate of attaining occupational skill. Course/program completion was defined by the states as the number of students fulfilling program requirements. High school graduation rate was defined by the states as the rate at which students graduate from school or achieve the GED(General Educational Development) equivalent. Any placement referred to rate of placement on any job or continuing education after course/program completion. In almost every case, both types of placement also included military service. States defined related placement as the rate at which students are placed in jobs related to training or in further education after program completion. States generally defined service to special populations as a measure of comparison between enrollment rates of general population students and special population students. Gender mix referred to the percentage of male and female students enrolled in vocational programs.

In addition to examining the standards approved for use by the states, this study also analyzed information concerning the techniques used in assessing performance. Five types of techniques used in assessing work skill attainment and competency attainment were identified: state developed, local selected or developed, nationally recognized, occupational licensure or certification, and other techniques. Statewide techniques were those developed for statewide use (e.g., Georgia Competency Checklists and Kansas Occupational Profiles). Local developed or selected techniques were those developed or selected by a local education agency. Selection of techniques used in this category were totally at the discretion of the local agency. Nationally recognized techniques were those developed for use across states and in many cases had national norms (e.g., Work Keys by ACT). Licensure and certification included those administered through a state, professional or trade organization. Other techniques included, for example, completion of vocational course work or portfolios.

Table 22

A Summary of Approved State Standards for Other Measures of Performance (Secondary) (N=54)

Performance Measure	Approved Standard f	 %
Competency Attainment	24	44
Work Skill Attainment	39	72
Course/Program Completion	25	46
High School Graduation	27	50
Related Placement	25	46
Any Placement	33	61
Service to Special Populations	28	52
Gender Mix	17	31

Competency Attainment

Twenty-four states reported assessing competency attainment of secondary vocational education students (See Table 22). Standards in this area included those related to the assessment of basic employability or transferable skills. Information concerning the techniques and standards used in the assessment of competency attainment is contained in this section.

Techniques. Table 23 presents information related to the techniques used in assessing competency attainment. Twenty-nine percent of the states reported the use of state developed techniques. Two-thirds of the states (67%) reported using local selected or developed techniques. About one-fifth (21%) of the states reported using nationally recognized techniques, with four different instruments being identified. Only eight percent of the states reported the use of licensure or certification, while almost one-third (29%) reported using other techniques. Completion of vocational course/program was the most frequently reported other technique for assessing competency attainment.

Table 23

Techniques Used to Assess Competency Attainment (Secondary) (N=24)

Assessment Technique		f	%
State Developed		7	29
Local Selected or Developed		16	67
Nationally Recognized		5	21
Jobs for American Graduates	1		
Workplace Readiness Assessment	2		
Work Keys ACT	1		
Youthwork	1		
Occupational Licensure or Certification		2	8
Other		7	29
Vocational Course/Program Completion	6		
Portfolios	1		

Standards. Information regarding the standards used in the assessment of competency attainment are presented in Table 24. Of those states reporting the use of state developed assessment techniques, the most frequently used standard was percentage of students attaining basic competency (43%). Sixty-nine percent of the states utilizing local selected or developed assessment and 80% of those using nationally recognized techniques reported the use of percentage of students achieving basic competency as a standard. Both of those states utilizing licensure and certification as techniques for assessing competency attainment reported attainment of the license or certificate as the standard. Of the states using other assessment techniques, over one-half (57%) did not indicate a standard, while all those that did indicate a standard (43%) reported course/program completion as the standard.

Table 24

Standards for Techniques Used in Assessing Competency Attainment of Vocational Students (Secondary) (N=24)

Type of Technique	f	%
State Developed	7	
Standards		
% of Students Attaining Basic Competency	3	43
To be Determined at State Level	2	28
Not Indicated	2	28
Local Selected or Developed	16	
Standards		
% of Students Attaining Basic Competency	11	69
Gain Scores	1	6
Local Program Determined	3	19
Not Indicated	1	6
Nationally Recognized	5	
Standards		
% of Students Attaining Basic Competency	4	80
Not Indicated	1	20
Licensure or Certification	2	
Standard		
Attainment of License or Certification	2	100
Other	7	
Standards		
Course/Program Completion	3	43
Not Indicated	4	57

Work Skill Attainment

Thirty-nine states reported assessing work skill attainment of secondary vocational education students (See Table 22). Information concerning the techniques and standards used in the assessment of competency attainment is contained in this section.

Techniques. Table 25 presents information related to the techniques used in assessing work skill attainment. Twenty-eight percent of the states reported the use of state developed techniques. Over two-thirds of the states (69%) reported using local selected or developed techniques. Only five percent of the states (N=2) reported using nationally recognized techniques, with both states reporting different instruments being used. Thirteen percent of the states reported the use of licensure or certification, while slightly more than one-fifth (21%) reported using other techniques. Completion of vocational course/program was the most frequently reported other technique for assessing competency attainment.

Table 25

Techniques Used to Assess Work Skill Attainment (Secondary) (N=39)

Assessment Technique		f	%
State Developed		11	28
Test	6		
Checklist	5		
Local Selected or Developed		27	69
Nationally Recognized		2	5
VTECS Materials	1		
NOCTI Exams	1		
Occupational Licensure or Certification		5	13
Other		8	21
Vocational Course/Program Completion	5		
Portfolios	2		
GPA in Vocational Courses	1		

Standards. Information regarding the standards used in the assessment of work skill attainment is presented in Table 26. Of those states reporting the use of state developed assessment techniques, the most frequently used standards were percentage of students attaining basic competency (27%) and gain scores (27%). Eighty-five percent of the states utilizing a local selected or developed assessment reported the use of percentage of students achieving basic competency as a standard. Of the two states reporting the use of nationally recognized techniques, one utilized a national norm as a standard, and one used a standard of gain scores. Eighty percent of those states utilizing licensure and certification reported attainment of the license or certificate as the standard. Of the states using other assessment techniques, one-half (50%) did not indicate a standard, those states that did indicate a standard (50%) reported course/program completion as the standard.

Table 26

Standards for Techniques Used in Assessing Work Skill Attainment (Secondary) (N=39)

Type of Technique	f		%
State Developed		11	
Standards			
% of Students Attaining Passing Score	3		27
Gain Scores	3		27
To be Determined at State Level	2		22
Not Indicated	2		22
Local Selected or Developed		27	
Standards			
% of Students Attaining Passing Score	23		85
Gain Scores	2		7
Local Program Determined	1		4
To be Determined at State Level	1		4
Nationally Recognized		2	
Standards			
National Norm	1		50
Gain Scores	1		50
Licensure or Certification		5	
Standards			
Attainment of License or Certification	4		80
Not Indicated	1		20
Other		8	
Standards			
Course/Program Completion	4		50
Not Indicated	4		50

Course/Program Completion

Twenty-five states reported a standard for course/program completion rates (See Table 22). Information concerning course/program completion is contained in this section.

Table 27 presents information about course/program completion standards. The states generally defined completion as completing the requirements of the vocational course/program or retention in the program. Eight states (32%) reported standards for course/program completion of between 80% and 90%.

Table 27

Standards Used in Assessing Course/Program Completion Rates (Secondary) (N=25)

Standard	f	%
Course/Program Completion and/or Retention Rates		
> 90%	0	0
80% - 90%	8	32
70% - 79%	2	8
< 70%	1	4
> Comparable Programs	1	4
Yearly Increase in Rates	2	8
To be Determined	4	16
Yearly Increase in Rates	1	4
Attrition Rate ≤ 10%	1	4
Not Indicated	5	20
Total	25	100

High School Graduation

Twenty-seven states reported a standard for high school graduation rates (See Table 22). Information on the standards used for high school graduation rates are contained in this section.

Table 28 portrays the data related to standards for high school graduation rates. Generally, states defined high school graduation as either graduation or its equivalent (e.g., GED). The most frequently reported standard (30%) was graduation rate for vocational students to be equal to or greater than the graduation rate for the total student population. Twenty-six percent of the states reported a standard of between 90% and 95% for graduation rate.

Table 28

Standards Used in Assessing High School Graduation Rates (Secondary) (N=27)

Standard	f	%
> 95%	1	4
90% - 95%	7	26
80% - 89%	2	7
< 80%	1	4
Rate for Vocational Student ≥ Total Student Rate	8	30
Local Established Rate	1	4
To be Determined	2	7
Not Indicated	5	18
Total	27	100

Placement

This section contains information on the standards approved for assessing placement rates. Ninety-two percent of the states reported some type of placement standard (McCaslin and Headley, 1993). States defined related placement as the rate at which students are placed in jobs related to training or in further education after program completion. Any placement referred to rate of placement on any job or continuing education after course/program completion. Forty-six percent of the states reported the use of a standard for related placement, while 61% reported the use of a standard for any placement (See Table 22).

Table 29 presents information concerning standards for placement rates. One-third (33%) of the states assessing any placement reported a standard of between 90% and 95% placement rate. Over one-fourth (27%) reported a standard of between 80% and 89%. The standards reported most often for related placement were between 70% and 79% (32% of the states) and less than 70% (24% of the states).

Table 29

Standards Used in Assessing Placement Rates (Secondary) (N=33)

Standard	Placement: Any f	%	Related f	%
90% - 95%	11	33	1	4
80% - 89%	9	27	1	4
70% - 79%	3	9	8	32
< 70%	2	6	6	24
Equal to Local Employment Rate	1	3	1	4
Annual Improvement in Rate	3	9	2	8
Local Program Established	1	3	0	0
To be Determined	3	9	2	8
Not Indicated	0	0	4	16
Total	33	99*	25	100

Note: * Column total not equal to 100 due to rounding error.

Service to Special Populations

Twenty-eight states specifically reported standards designed to assess service to special population students (See Table 22). This section contains information related to the standards used in assessing service to special population students.

Table 30 presents data related to standards used in assessing service to special population students. Vocational education special population enrollment being equal to or greater than the rate of special population enrollment in the total school or district was the most frequently reported standard (71%). Two states defined this standard as a rate greater than 80% of the total special population enrollment in the school, while the remainder of these states defined the standard as being equal to or greater than the actual special population enrollment in the school or district.

Table 30

Standards Used in Assessing Service to Special Populations (Secondary) (N=28)

Standard	f	%
Vocational Special Population Enrollment ≥ Total Special Population Enrollment	20	71
Vocational Special Population Enrollment 50% - 75% Total Special Population Enrollment	1	4
Equalized Distribution of Special Populations Across Vocational Programs	1	4
Increase in Special Population Enrollment in Vocational Programs	1	4
To be Determined	1	4
Not Indicated	4	14

Gender Equity

Seventeen states specifically reported a standard designed to assess the participation of nontraditional gender participation in vocational programs (See Table 22). Information concerning these standards is found in Table 31. Thirty-five percent of the states did not indicate a standard. Vocational gender enrollment rate equaling total gender enrollment rate (24%), and yearly increase in gender enrollment rate (24%) were the most frequently reported standards of those states indicating a standard.

Table 31

Standards Used in Assessing Gender Participation (Secondary) (N=17)

Standard	f	%
Vocational Gender Enrollment Rate Equals Total Gender Enrollment Rate	4	24
Yearly Increase in Gender Enrollment Rate	4	24
Vocational Gender Enrollment Rate $\geq$ 25%	3	18
Not Indicated	6	35

Postsecondary Vocational Education Standards

Standards of performance for postsecondary vocational education programs was also examined in this study. As with secondary vocational education, the major categories required by the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 were used in organizing the findings concerning performance standards. These categories included academic performance and other performance.

Academic Standards

Academic standards were organized into two groups: basic and advanced. Thirty-one percent of the states reported the use of one set of standards for both basic and advanced academics (McCaslin and Headley, 1993). Information on the number of states with approved standards for these areas is presented in Table 32. Standards were reported for use with academic areas including reading, language, mathematics, science, and other academic skills. The most frequently assessed areas of basic academic performance were mathematics (56%) and language (54%). The most frequently assessed areas of advanced academic performance were mathematics (48%), language (44%), and other advanced academic performance (44%).

Table 32

A Summary of Approved State Standards for Academic Skills (Postsecondary) (N=54)

Academic Skill	f	%
Basic		
Reading	26	48
Language	29	54
Mathematics	30	56
Science	8	15
Other	27	50
Advanced		
Reading	16	30
Language	24	44
Mathematics	26	48
Science	8	15
Other	24	44

In addition to examining the standards which had been approved by the states for use with academic performance measures, this study examined the types of techniques used in assessing performance. Four major types of techniques were identified: state developed, local selected or developed, nationally recognized, and other. Statewide techniques were those developed for statewide use (e.g., New Jersey testing program for collegiate and non-collegiate post secondary vocational students). Local developed techniques were those developed or selected by a local education agency. In some cases the state suggested some nationally recognized instrument for possible use, in other states, the choice of technique was left totally to the local agency. Nationally recognized techniques were those developed for use nationwide and in many cases used national norms (e.g., Test of Adult Basic Education). The use of these instruments was mandated by the state. The category other techniques included, for example, gain or progress in a course, or completion of course work. The use of techniques in this category were also mandated by the state.

A number of states reported the use of more than one assessment technique for each of the academic measures. For assessing reading, four states reported the use of more than one technique. Four states also reported using more than one assessment technique for mathematics and for language. In addition, one state reported the use of more than assessment technique for assessing other academic skills.

Reading

In the academic area of reading, twenty-six states reported having approved standards for basic reading performance and sixteen states reported approved standards for advanced reading performance (see Table 32). Information concerning the techniques used to assess reading performance and the standards for basic and advanced reading performance is contained in this section.

Basic Reading Performance. Table 33 presents information on the techniques used to assess basic reading performance. Only eight percent of the states reported the use of state developed assessment techniques. Sixty-nine percent of the states reported the use of local selected or developed techniques. Slightly over one-fourth (27%) of the states reported the use of nationally recognized techniques. Three different instruments were reported to be in use in use; with only the Test of Adult Basic Education being used by more than one state. Thirty-eight percent of the states reported using other techniques, such as course/program completion, grade point average (GPA) and graduate equivalency diploma (GED) criteria.

Table 33

Techniques Used to Assess Basic Reading Performance (Postsecondary) (N=26)

Assessment Techniques		f	%
State Developed		2	8
Local Selected or Developed		18	69
Nationally Recognized		7	27
Test of Adult Basic Education	5		
California Achievement Test	1		
Asset	1		
Other		9	38
Course/Program Completion	6		
GED Criteria	1		
GPA	2		

Standards approved for use with measures of basic reading performance are displayed in Table 34. Of those states reporting the use of state developed assessment techniques, the percentage of students receiving a passing score (50%) and a standard determined by the local program (50%) were equally reported. Of the states reporting the use of a local selected technique, 39%, used gain scores and 33% reported local program determined standards. The most frequently reported standard for those using a nationally recognized technique was national norm scores (57%). Almost one-half (44%) of the states which employed other techniques for assessing basic reading performance reported a standard of course/program completion.

Advanced Reading Performance. Table 35 presents information on the techniques used to assess advanced reading performance. Six percent of the states measuring advanced reading performance reported the use of state developed assessment techniques. Three-fourths (75%) of the states reported using local selected or developed techniques. One-fourth (25%) of the states assessing advanced reading performance reported the use of nationally recognized techniques. Two instruments were reported to be in use; with the Test of Adult Basic Education being used by more than one state. About one-third of the states (31%) reported the use of other techniques, such as course/program completion and GPA.

Table 34

Standards for Techniques Used to Assess Basic Reading Performance (Postsecondary) (N=26)

Type of Techniques and Standards	f	%
State Developed Techniques	2	
Standards		
% of Students Passing	1	50
Local Program Determined	1	50
Local Selected or Developed Techniques	18	
Standards		
Grade Level/Norm Reference Score	4	22
Gain Scores	7	39
Local Program Determined	6	33
To be Determined	1	6
Nationally Recognized Techniques	7	
Standards		
National Norm Score	4	57
Gain Scores	2	29
Not Indicated	1	14
Other Techniques	9	
Standards		
Gain or Progress	1	11
Course/Program Completion	4	44
Not Indicated	2	22
GPA	2	22

Table 35

Techniques Used to Assess Advanced Reading Performance (Postsecondary) (N=16)

Assessment Techniques		f	%
State Developed		1	6
Local Selected or Developed		12	75
Nationally Recognized		4	25
Test of Adult Basic Education	3		
Asset	1		
Other		5	31
Course/Program Completion	4		
GPA	1		

Standards approved for use with measures of advanced reading performance are displayed in Table 36. The one state reporting the use of a state developed assessment technique used a gain score as a standard. Of the states reporting the use of a local selected technique 50% used standards determined by the local program. The most frequently reported standard for those using a nationally recognized technique was a national norm score (50%). Eighty percent of the states which employed other techniques for assessing advanced reading performance reported using a course/program completion standard.

Table 36

Standards for Techniques Used to Assess Advanced Reading Performance (Postsecondary) (N=16)

Type of Techniques and Standards	f		%
State Developed Techniques		1	
Standards			
Gain Scores	1		100
Local Selected or Developed Techniques		12	
Standards			
Grade Level/Norm Reference Score	2		17
Gain Scores	4		33
Local Program Determined	6		50
Nationally Recognized Techniques		4	
Standards			
National Norm Score	2		50
Gain Scores	1		25
Not Indicated	1		25
Other Techniques		5	
Standards			
Course/Program Completion	4		80
GPA	1		20

Language

Twenty-nine states reported assessing basic language performance, while twenty-four states reported assessing advanced academic performance (see Table 32). This section contains information regarding the techniques and standards used to assess language performance.

Basic Language Performance. Table 37 presents information on the techniques used to assess basic language performance. Ten percent of the states measuring basic language performance reported the use of state developed assessment techniques. Fifty-five percent of the states reported the use of local selected or developed techniques. About one-fifth of the states (17%) reported the use of nationally recognized techniques. Two different instruments were reported to be in use and the Test of Adult Basic Education was being used in more than one state. Forty-one percent of the states measuring basic language performance reported using other assessment techniques such as course/program completion.

Table 37

Techniques Used to Assess Basic Language Performance (Postsecondary) (N=29)

Assessment Techniques		f	%
State Developed		3	10
Local Selected or Developed		16	55
Nationally Recognized		5	17
Test of Adult Basic Education	4		
Asset	1		
Other		12	41
Course/Program Completion	9		
GED Criteria	1		
Institutional Requirements	1		
GPA	1		

Standards approved for use with measures of basic language performance are displayed in Table 38. Of those states reporting the use of state developed techniques, the percentage of students receiving a passing score was the most frequently reported (67%) standard. Gain scores were the most frequently used standard for local selected or developed techniques with 50% of the states measuring basic language performance reporting their use. National norm scores were the most frequently reported (60%) standard for nationally recognized assessment techniques. Of the states reporting other techniques for assessing basic language performance, 67% used a course/program completion standard.

Table 38

Standards for Techniques Used to Assess Basic Language Performance (Postsecondary) (N=29)

Type of Techniques and Standards	f	%
State Developed Techniques	3	
Standards		
% of Students Passing	2	67
Comparison with all Students	1	33
Local Selected or Developed Techniques	16	
Standards		
Grade Level/Norm Reference Score	4	25
Gain Scores	8	50
Local Program Determined	4	25
Nationally Recognized Techniques	5	
Standards		
National Norm Score	3	60
Gain Scores	1	20
Not Indicated	1	20
Other Techniques	12	
Standards		
Course/Program Completion	8	67
Not Indicated	2	17
Comparison with all Student	1	8
GPA	1	8

Advanced Language Performance. Table 39 contains information on the techniques used to assess advanced language performance. Thirteen percent of the states used a state developed technique. One-half (50%) of the states used a local selected or developed technique, while only 17% used a nationally recognized assessment technique. Two different instruments were being used by those states using nationally recognized assessment techniques, with only the Test of Adult Basic Education being used by more than one state. Fifty percent of the states used other assessment techniques such as course/program completion.

Standards approved for use with measures of advanced language performance are displayed in Table 40. Of those three states using state developed assessment techniques, an equal number reported using standards of, percent of students passing, gain scores, and a comparison with all students. Among states using local selected or developed techniques, 42% reported the use of a standard involving a gain score. The most frequently reported standard in use in states using nationally recognized techniques was a national norm scores (50%). Course/program completion was used by 83% of the states reporting the use of other assessment techniques.

Table 39

Techniques Used to Assess Advanced Language Performance (Postsecondary) (N=24)

Assessment Techniques	f		%
State Developed		3	13
Local Selected or Developed		12	50
Nationally Recognized		4	17
Test of Adult Basic Education	3		
Asset	1		
Other		12	50
Course/Program Completion	10		
Institutional Requirements	1		
GPA	1		

Table 40

Standards for Techniques Used to Assess Advanced Language Performance (Postsecondary) (N=24)

Type of Techniques and Standards	f	%
State Developed Techniques	3	
Standards		
% of Students Passing	1	33
Gain Scores	1	33
Comparison with all Students	1	33
Local Selected or Developed Techniques	12	
Standards		
Grade Level/Norm Reference Score	2	17
Gain Scores	5	42
Local Program Determined	4	33
To be Determined	1	8
Nationally Recognized Techniques	4	
Standards		
National Norm Score	2	50
Gain Scores	1	25
Not Indicated	1	25
Other Techniques	12	
Standards		
Course/Program Completion	10	83
Comparison with all Students	1	8
GPA	1	8

Mathematics

More states reported the assessment of basic and advanced mathematics performance than any other academic skill. Thirty states reported assessing basic mathematics performance, while twenty-six reported assessing advanced mathematics performance (See Table 32). Information concerning the techniques and standards used in assessing mathematics performance is contained in this section.

Basic Mathematics Performance. Table 41 displays information regarding the techniques used in assessing basic mathematics performance. Only seven percent of the states reported the use of state developed assessment techniques. Conversely, 60% of the states reported the use of local selected or developed techniques. Seventeen percent of the states reported the use of nationally recognized assessment techniques. Of the two instruments identified, the Test of Adult Basic Education was the only one used by more than one state. Forty-seven percent of the states used other techniques, with course/program completion being used in the majority of these states.

Table 41

Techniques Used to Assess Basic Mathematics Performance (Postsecondary) (N=30)

Assessment Techniques		f	%
State Developed		2	7
Local Selected or Developed		18	60
Nationally Recognized		5	17
Test of Adult Basic Education	4		
Asset	1		
Other		14	47
Course/Program Completion	10		
GED Criteria	1		
Institutional Requirements	1		
GPA	2		

The standards reported to be in use for basic mathematics performance are presented in Table 42. The percent of students passing and a to be determined standard were the most frequently used standards for state developed techniques (each 50%). Among the states using local selected or developed assessment techniques, 42% reported using gain scores as a standard. Forty percent of the states using nationally recognized techniques used a national norm as the most frequently reported standard. Sixty-four percent of the states using other techniques reported the use of a standard of course/program completion.

Table 42

Standards for Techniques Used to Assess Basic Mathematics Performance (Postsecondary) (N=30)

Type of Techniques and Standards	f	%
State Developed Techniques	2	
Standards		
% of Students Passing	1	50
To be Determined at State Level	1	50
Local Selected or Developed Techniques	19	
Standards		
Grade Level/Norm Reference Score	4	21
Gain Scores	8	42
Local Program Determined	6	32
To be Determined	1	5
Nationally Recognized Techniques	5	
Standards		
National Norm Score	2	40
Gain Scores	1	20
To be Determined at State Level	2	40
Other Techniques	14	
Standards		
Course/Program Completion	9	64
Not Indicated	2	14
Comparison with all Students	1	8
GPA	2	14

Advanced Mathematics Performance. Information pertaining to the techniques used by states in assessing advanced mathematics performance is contained in Table 43. Only eight percent of the states reported the use of state developed assessment techniques. Fifty percent reported the use of local selected and developed assessment techniques. Fifteen percent of the states reported using a nationally recognized instrument, with just two different instruments identified. Of these, only the Test of Adult Basic Education was reported to be in use by more than one state. More than one-third (38%) of the states reported the use of an other assessment technique. Course/program completion was the most frequently reported of the other techniques.

Table 43

Techniques Used to Assess Advanced Mathematics Performance (Postsecondary) (N=26)

Assessment Techniques		f	%
State Developed		2	8
Local Selected or Developed		13	50
Nationally Recognized		4	15
Test of Adult Basic Education	3		
Asset	1		
Other		10	38
Course/Program Completion	8		
Institutional Requirements	1		
GPA	1		

Table 44 contains information on the standards approved for use in assessing advanced mathematics performance. Percent of students passing and gain scores were both used as standards in one-half (50%) of those states reporting the use of a state developed assessment technique. Gain scores (38%) and standards determined by the local programs (38%) were the most frequently reported standards for local selected or developed assessment techniques. Of those states using a nationally recognized technique for assessing advanced mathematics performance, 50% used a national norm score standard. Seventy percent of those states using other techniques reported the use of course/program completion as a standard.

Table 44

Standards for Techniques Used to Assess Advanced Mathematics Performance (Postsecondary) (N=26)

Type of Techniques and Standards	f		%
State Developed Techniques		2	
Standards			
% of Students Passing	1		50
Gain Scores	1		50
Local Selected or Developed Techniques		13	
Standards			
Grade Level/Norm Reference Score	2		15
Gain Scores	5		38
Local Program Determined	5		38
To be Determined	1		8
Nationally Recognized Techniques		4	
Standards			
National Norm Score	2		50
Gain Scores	1		25
To be Determined at State Level	1		25
Other Techniques		10	
Standards			
Course/Program Completion	7		70
Not Indicated	1		10
Comparison with all Students	1		10
GPA	1		10

Science

Eight states reported the assessment of both basic and advanced science performance (See Table 32). Information regarding the assessment techniques and standards for use with measures of basic and advanced science performance is contained in this section.

Basic Science Performance. Information regarding the techniques used to assess basic science performance is displayed in Table 45. Eighty-seven percent of the states reported the use of local selected or developed techniques. Thirteen percent of the states reported the use of an other assessment technique. No state reported using a nationally recognized or state developed assessment technique for assessing basic science performance.

Standards approved for use with measures of basic science performance are depicted in Table 46. Gain scores were the most frequently reported standard (57%) for those states reporting the use of local developed or selected assessment techniques. The state using other techniques for assessing basic science performance reported a comparison with all students standard.

Table 45

Techniques Used to Assess Basic Science Performance (Postsecondary) (N=8)

Assessment Techniques		f	%
State Developed		0	0
Local Selected or Developed		7	87
Nationally Recognized		0	0
Other		1	13
Institutional Requirements	1		

Table 46

Standards for Techniques Used to Assess Basic Science Performance (Postsecondary) (N=8)

Type of Techniques and Standards	f	%
State Developed Techniques	0	
Local Selected or Developed Techniques	7	
Standards		
Gain Scores	4	57
Local Program Determined	2	29
To be Determined	1	14
Nationally Recognized Techniques	0	
Other Techniques	1	
Standard		
Comparison with all students	1	100

Advanced Science Performance. Table 47 presents information concerning the techniques used to assess advanced science performance. Eighty-seven percent of the states reported the use of a local developed or selected assessment technique. Thirteen percent of the states reported the use of other assessment techniques. No state reported the use of state developed or nationally recognized assessment techniques for advanced science performance.

Standards used in assessing advanced science performance are presented in Table 48. Gain scores (43%) and standards determined by the local program (43%) were the most frequently reported standards used for local selected or developed assessment techniques. The one state reporting the use of other assessment techniques utilized a standard of comparison with all students.

Table 47

Techniques Used to Assess Advanced Science Performance (Postsecondary) (N=8)

Assessment Techniques		f	%
State Developed		0	0
Local Selected or Developed		7	87
Nationally Recognized		0	0
Other		1	13
Institutional Requirements	1		

Table 48

Standards for Techniques Used to Assess Advanced Science Performance (Postsecondary) (N=8)

Type of Techniques and Standards		f	%
State Developed Techniques		0	
Local Selected or Developed Techniques		7	
Standards			
Gain Scores	3		43
Local Program Determined	3		43
To be Determined	1		14
Nationally Recognized Techniques		0	
Other Techniques		1	
Standard			
Comparison with all Students	1		100

Other Academic Performance

In addition to reading, language, mathematics, and science, other academic skills were assessed by a number of states. Among these academics were social studies, problem solving, and thinking skills. Twenty-seven states assessed other basic academic skills, while twenty-four states assessed other advanced academic skills (See Table 32). This section contains information on the techniques and standards used to assess other academic performance.

Other Basic Academic Performance. Information concerning techniques used to assess other basic academic performance is contained in Table 49. Only four percent of the states reported the use of state developed assessment techniques. Fifty-six percent reported the use of local selected or developed techniques, while no state reported the use of a nationally recognized assessment technique. Over one-third (40%) of the states reported the use of other assessment techniques, the most frequently reported of these being course/program completion.

Table 49

Techniques Used to Assess Other Basic Academic Performance (Postsecondary) (N=27)

Assessment Techniques		f	%
State Developed		1	4
Local Selected or Developed		15	56
Nationally Recognized		0	0
Other		11	40
Course/Program Completion	6		
GED Criteria	1		
GPA	3		
Student Opinion Survey	1		

Other Advanced Academic Performance. Techniques used to assess other advanced academic performance are displayed in Table 51. Only four percent of the states used state developed assessment techniques. Fifty percent used a local selected or developed technique, while no state reported the use of a nationally recognized assessment technique. About one-half (46%) of the states reported the use of other assessment techniques, for example, course/program completion or GPA.

Table 50

Standards for Techniques Used to Assess Other Basic Academic Performance (Postsecondary) (N=27)

Type of Techniques and Standards	f		%
State Developed Techniques		1	
Standards			
% of Students Passing	1		100
Local Selected or Developed Techniques		15	
Standards			
Grade Level/Norm Reference Score	3		20
Gain Scores	5		33
Local Program Determined	5		33
Not Indicated	2		14
Nationally Recognized Techniques		0	
Other Techniques		11	
Standards			
Course/Program Completion	5		45
Not Indicated	3		27
GPA	3		27

Table 51

Techniques Used to Assess Other Advanced Academic Performance (Postsecondary) (N=24)

Assessment Techniques		f	%
State Developed		1	4
Local Selected or Developed		12	50
Nationally Recognized		0	0
Other		11	46
Course/Program Completion	6		
GPA	4		
Student Opinion Survey	1		

Table 52 presents information on the standards used in assessing other advanced academic performance. A gain score standard was used by the state reporting a state developed technique for assessing advanced other academic performance. Fifty percent of the states using a local selected or developed technique reported the use of a standard determined by the local program. Forty-five percent of states using other assessment techniques used a course/program completion standard, while 37% of states utilized GPA.

Table 52

Standards for Techniques Used to Assess Other Advanced Academic Performance (Postsecondary) (N=24)

Type of Techniques and Standards	f		%
State Developed Techniques		1	
Standards			
Gain Scores	1		100
Local Selected or Developed Techniques		12	
Standards			
Grade Level/Norm Reference Score	2		17
Gain Scores	4		33
Local Program Determined	6		50
Nationally Recognized Techniques		0	
Other Techniques		11	
Standards			
Course/Program Completion	5		45
Not Indicated	2		18
GPA	4		37

Standards for Other Performance

Standards for other performance were classified in one of four groups: competency attainment, work skill attainment, course/program completion, and placement. These groups corresponded with the requirements for performance measures and standards outlined by the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. States were not limited to adopting only the measures and standards outlined in the legislation. However, they were instructed by law to include at least one of the previously mentioned measures of performance (with corresponding standards), regardless of the number or type of additional measures approved. Since the Perkins Act required states to offer incentives and adjustments for service to special populations, this study also examined any additional measures and standards dealing with level of service to those individuals and gender equity.

Information regarding the number of states approving standards for other measures of performance is presented in Table 53. The most frequently reported measures of other performance were program completion (70%) and work skill attainment (63%). Information concerning the measures of other performance may be found in A National Study of Approved State Systems of Performance Measures and Standards for Vocational Education (McCaslin and Headley, 1993).

Competency attainment was generally defined by the states as the rate of acquisition of basic employability skills. Work skill attainment was defined as the rate of attaining occupational skill. Course/program completion was defined by the states as the number of students fulfilling program requirements. Any placement referred to rate of placement on any job or continuing education after course/program completion. States defined related placement as the rate at which students are placed in jobs related to training or in further education after course/program completion. In almost all states, both types of placement included entry into the military. States generally defined service to special populations as a measure of comparison between enrollment rates of general population students and special population students. Gender mix referred to the percentage of male and female students enrolled in vocational education programs.

In addition to examining the standards approved for use by the states, this study also analyzed information concerning the techniques used in assessing performance. Five types of techniques used in assessing work skill attainment and competency attainment were identified: state developed, local selected or developed, nationally recognized, occupational licensure or certification, and other techniques. State developed techniques were those approved for statewide use (e.g., Kansas Occupational Profiles). Local developed or selected techniques were those developed or selected by a local education agency. Selection of techniques used in this category were totally at the discretion of the local agency. Nationally recognized techniques were those developed for use across states and in many cases were nationally normed (e.g., Work Keys by ACT). Licensure and certification included those administered through a state, professional or trade organization. Other techniques included, for example, completion of vocational course work or portfolios.

Table 53

A Summary of Approved State Standards for Other Measures of Performance (Postsecondary) (N=54)

Performance Measure	Approved Standards f	Approved Standards %
Competency Attainment	18	33
Work Skill Attainment	34	63
Course/Program Completion	38	70
Related Placement	26	48
Any Placement	30	56
Service to Special Populations	30	56
Gender Mix	17	31

Competency Attainment

Eighteen states reported the assessment of competency attainment (See Table 53). Information regarding the techniques and standards used in assessing competency attainment is contained in this section.

Techniques. Table 54 presents information related to the techniques used in assessing competency attainment. Eleven percent of the states reported the use of state developed techniques. Two-thirds of the states (67%) reported using local selected or developed techniques. About one-fifth (21%) of the states reported using nationally recognized techniques, with four different instruments being identified. The Workplace Readiness Assessment Instrument was the only test being used in more than one state. Only eight percent of the states reported the use of licensure or certification, while almost one-third (29%) reported using other techniques. Completion of vocational course/program work was the most frequently reported other technique for assessing competency attainment.

Table 54

Techniques Used to Assess Competency Attainment (Postsecondary) (N=18)

Assessment Technique		f	%
State Developed		2	11
Local Selected or Developed		12	67
Nationally Recognized		5	21
Jobs for American Graduates	1		
Workplace Readiness Assessment	2		
Work Keys ACT	1		
Youthwork	1		
Occupational Licensure or Certification		0	8
Other		7	29
Vocational Course/Program Completion	6		
Portfolios	1		

Standards. Information regarding the standards used in the assessment of competency attainment are presented in Table 55. Of those states reporting the use of state developed assessment techniques, the most frequently used standard was percentage of students attaining basic competency (50%). Fifty percent of the state did not indicate a standard. Fifty percent of the states utilizing local selected or developed assessment and 60% of those using nationally recognized techniques reported the use of percentage of students achieving basic competency as a standard. Of the states using other assessment techniques, almost three-fourths (71%) reported course/program completion as the standard.

Work Skill Attainment

Thirty-four states reported assessing work skill attainment of secondary vocational education students (See Table 53). Information concerning the techniques and standards used in the assessment of competency attainment is contained in this section.

Techniques. Table 56 presents information related to the techniques used in assessing work skill attainment. Twelve percent of the states reported the use of state developed techniques. Over one-half of the states (56%) reported using local selected or developed techniques. Only one of the states reported using nationally recognized techniques, with NOCTI Exams being the only instrument reported. Twenty-one percent of the states reported the use of licensure or certification, while about one-fourth (24%) reported using other techniques. Completion of vocational course work and GPA in vocational course work were the most frequently reported other techniques.

Table 55

Standards for Techniques Used in Assessing Competency Attainment (Postsecondary) (N=18)

Type of Technique	f	%
State Developed	2	
Standards		
% of Students Attaining Basic Competency	1	50
Not Indicated	1	50
Local Selected or Developed	12	
Standards		
% of Students Attaining Basic Competency	6	50
Gain Scores	1	8
Local Program Determined	1	8
To be Determined at State Level	1	8
Not Indicated	3	25
Nationally Recognized	5	
Standards		
% of Students Attaining Basic Competency	3	60
Not Indicated	2	40
Licensure or Certification	0	
Other	7	
Standards		
Course/Program Completion	5	71
Not Indicated	2	29

Table 56

Techniques Used to Assess Work Skill Attainment (Postsecondary) (N=34)

Assessment Technique	f		%
State Developed		4	12
Test	3		
Checklist	1		
Local Selected or Developed		19	56
Nationally Recognized		1	3
NOCTI Exams	1		
Occupational Licensure or Certification		7	21
Other		8	24
Vocational Course/Program Completion	3		
GPA in Vocational Courses	3		
Degree	1		
Student Opinion Survey	1		

Standards. Information regarding the standards used in the assessment of work skill attainment are presented in Table 57. Of those four states reporting the use of state developed assessment techniques, an equal number (25%) reported the use of percent of students achieving basic competency, gain scores, a yet to be determined standard, and a standard that was not indicated. Seventy-nine percent of the states utilizing a local selected or developed assessment reported the use of percentage of students achieving a passing score as a standard. The state reporting the use of a nationally recognized technique reported the utilization of a national norm as a standard. Fifty-seven percent of those states utilizing licensure and certification reported attainment of the license or certificate as the standard. Of the states using other assessment techniques, one-half (50%) did not indicate a standard and 37% reported course/program completion as the standard.

Table 57

Standards for Techniques Used in Assessing Work Skill Attainment (Postsecondary) (N=34)

Type of Technique	f	%
State Developed	4	
Standards		
% of Students Attaining Passing Score	1	25
Gain Scores	1	25
To be Determined at State Level	1	25
Not Indicated	1	25
Local Selected or Developed	19	
Standards		
% of Students Attaining Passing Score	15	79
Gain Scores	1	5
Not Indicated	3	16
Nationally Recognized	1	
Standard		
National Norm	1	100
Licensure or Certification	7	
Standards		
Attainment of License or Certification	4	57
Not Indicated	3	43
Other	8	
Standards		
Course/Program Completion	3	37
Local Determined	1	13
Not Indicated	4	50

Program Completion

Thirty-eight states reported a standard for program completion rates (See Table 53). Information concerning program completion is contained in this section.

Table 58 presents information about program completion standards. The states generally defined completion as completing the requirements of the vocational program or retention in the program. Seventeen of the states did not indicate a standard. The most frequently reported standards were between 80% and 90% rate (13%), and less than 70% rate (13%).

Table 58

Standards Used in Assessing Student Completion of Vocational Programs (Postsecondary) (N=38)

Standard	f	%
Program Completion and/or Retention Rates		
> 90%	0	0
80% - 90%	5	13
70% - 79%	3	8
< 70%	5	13
Yearly Increase in Rate	1	3
To be Determined	4	11
Comparison to Institutional Completion Rate		
≥ Institutional Completion Rate	2	5
Attrition Rate ≤ 10%	1	3
Not Indicated	17	44
Total	38	100

Placement

This section contains information on the standards approved for assessing placement rates. Eighty-eight percent of the states reported some type of placement standard (McCaslin and Headley, 1993). States defined related placement as the rate at which students are placed in jobs related to training or in further education after program completion. Any placement referred to rate of placement on any job or continuing education after program completion. Twenty-six of the states (48%) reported the use of a standard for related placement, while thirty states (56%) reported the use of a standard for any placement (See Table 53).

Table 59 presents information concerning standards for placement rates. One-fifth (20%) of the states assessing any placement reported a standard of a rate of between 80% and 89%. Almost one-fifth of these states (17%) reported a standard of over 90%. The most frequently reported standard for related placement were 80% - 89% (31% of the states) and 70% - 79% (27% of the states).

Table 59

Standards Used in Assessing Placement Rates (Postsecondary) (N=30)

Standard	Any Placement f	Any Placement %	Related Placement f	Related Placement %
90% - 95%	5	17	1	4
80% - 89%	6	20	8	31
70% - 79%	1	3	7	27
< 70%	0	0	3	11
Equal to Local Employment Rate	1	3	0	0
Annual Improvement in Rate	3	10	1	4
Local Program Established	1	3	0	0
To be Determined	3	10	1	4
Not Indicated	10	33	5	19
Total	30	99*	26	100

Note:* Column total not equal to 100 due to rounding error.

Service to Special Populations

Thirty states (56%) reported standards designed to assess service to special population students (See Table 53). This section contains information related to the standards utilized in assessing service to special population students.

Table 60 presents data related to standards used in assessing service to special population students. Vocational education special population enrollment being equal to or greater than the rate of special population enrollment in the total school or district was the most frequently reported standard (40%). Two of theses states defined this standard as a rate greater than 80% of the total special population enrollment in the school, while the remainder of the states defined the standard as being equal to or greater than the actual special population enrollment in the school or district. Forty-seven percent of the states did not indicate a standard.

Table 60

Standards Used in Assessing Service to Special Populations (Postsecondary) (N=30)

Standard	f	%
Vocational Special Population Enrollment ≥ Total Special Population Enrollment	12	40
Percent Special Population Students Enrolled Equals Special Population Students Applied	1	3
Increase in Special Population Enrollment in Vocational Programs	1	3
To be Determined	2	7
Not Indicated	14	47

Gender Equity

Seventeen states reported a specific standard designed to assess the participation of nontraditional gender participation in vocational programs (See Table 53). Information concerning these standards is found in Table 61. Fifty-eight percent of the states did not indicate a standard. Yearly increase in gender enrollment rate (24%) and vocational gender enrollment rate equaling total gender enrollment rate (12%) were the most frequently reported standards of those states indicating a standard.

Table 61

Standards Used in Assessing Gender Participation (Postsecondary) (N=17)

Standard	f	%
Vocational Gender Enrollment Rate Equals Total Gender Enrollment Rate	2	12
Yearly Increase in Gender Enrollment Rate	4	24
Rate of Gender Enrollment Equals Rate of Gender Application to Program	1	6
Not Indicated	10	58

Comparing Standards Across Secondary and Postsecondary Vocational Education

As reported in the previous sections, a number of standards have been developed by states for assessing academic and other performance. This section will present findings that permit comparisons of the kinds of standards adopted within and across the secondary and postsecondary level. Three basic kinds of standards were selected for use by the states. These were criterion-based, norm-based and gains-based. A number of states did not indicate standards or had not developed standards.

Criterion-based standards were those in which the standard was based on a predetermined level of performance, gauged against a known mark, score, or indicator. Examples of this kind of standard included a pre-determined percentage of students passing a state developed academic assessment test, and a pre-determined percentage of students attaining basic competency. Criterion based standards did not require that vocational students be compared to other students or that vocational programs be compared with other programs.

Norm-based standards were those in which the standards were based on comparisons between vocational students and other students or those which compared between vocational programs. Examples of this kind of standard included those which were used with a nationally normed test, such as the Iowa Test of Basic Skills. Other standards of this type included those which compared vocational program outcomes with state averages.

Gains-based standards were those in which the vocational program was assessed based on the gain of students or gain in program outcomes. An example of this type of standard is that all students show a gain on a state developed assessment from the eleventh to twelfth grade. Another type of this standard is that the average score of students on an academic test would increase over previous years.

Academic Standards

Standards were developed for basic and advanced academic performance at the secondary and postsecondary level. Information regarding kinds of standards used in reading, language, mathematics, science and other academic performance is presented in this section.

Reading

Forty-three states at the secondary level and twenty-six states at the postsecondary level assessed basic reading performance (see Table 1 and Table 32). Table 62 portrays information concerning the kind of standard used by the states for basic and advanced reading skill. Fifty-three standards were developed for secondary basic reading, while thirty-six standards were developed at the postsecondary level. For basic reading performance, the most frequently reported standards were gains-based. Thirty-two percent of the secondary standards and 28% of the postsecondary standards were gains-based.

Thirty-five states at the secondary level and sixteen states at the postsecondary level assessed advanced reading performance (see Table 1 and Table 32). Forty-four standards were developed for secondary advanced reading performance. At the postsecondary level, twenty-two standards were reported. The most frequently reported standards for advanced reading performance were also gains-based. Forty-one percent of the secondary standards and 27% of the postsecondary standards were gains-based. Thirty-two percent of the states did not indicate or had not determined standards for advanced reading at the postsecondary level, while only 17% had not developed or did not indicate a standard at the secondary level.

Table 62

Standards for Secondary and Postsecondary Reading Performance

Reading Performance	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Basic				
Criterion-based standard	14	26	7	19
Norm-based standard	12	23	8	22
Gains-based standard	17	32	10	28
Not determined/not indicated	10	19	11	31
Advanced				
Criterion-based standard	10	22	5	23
Norm-based standard	9	20	4	18
Gains-based standard	19	41	6	27
Not determined/not indicated	8	17	7	32

Language

Forty states at the secondary level and twenty-nine states at the postsecondary level assessed secondary basic language skill (see Table 1 and Table 32). Table 63 portrays information concerning the kinds of standards used by the states for basic and advanced language skill. Forty-eight standards were developed for secondary basic language performance. At the postsecondary level, thirty-six standards were reported. For basic language performance, the most frequently reported standards at the secondary level were gains-based (35%). Thirty-one percent of postsecondary standards were criterion-based, the most frequently reported kind of standard.

Thirty-five states at the secondary level and twenty-four states at the postsecondary level assessed advanced language skill (see Table 1 and Table 32). Forty-two standards were developed for secondary advanced language performance. At the postsecondary level, thirty-one standards were reported. The most frequently reported standards for advanced language performance at the secondary level were gains-based (40%). The most frequently reported standards for advanced reading performance at the postsecondary level were criterion-based (39%).

Table 63

Standards for Secondary and Postsecondary Language Performance

Language Performance	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Basic				
Criterion-based standard	13	27	11	31
Norm-based standard	10	21	9	25
Gains-based standard	17	35	9	25
Not determined/not indicated	8	17	7	19
Advanced				
Criterion-based standard	10	24	12	39
Norm-based standard	9	21	6	19
Gains-based standard	17	40	7	23
Not determined/not indicated	6	14	6	19

Mathematics

Forty-six states at the secondary level and thirty states at the postsecondary level assessed basic mathematics skill (see Table 1 and Table 32). Table 64 portrays information concerning the kind of standard used by the states for basic and advanced mathematics skill. Fifty-six standards were developed for secondary basic mathematics performance. At the postsecondary level, forty standards were reported. For basic mathematics performance, the most frequently reported standards at the secondary level were gains-based (38%). Thirty percent of postsecondary standards were criterion-based, the most frequently reported kind of standard. However, for postsecondary basic mathematics performance, 30% of the standards were not reported or not indicated.

Forty-one states at the secondary level and twenty-six states at the postsecondary level assessed advanced mathematics skill (see Table 1 and Table 32). Fifty-two standards were developed for secondary advanced mathematics performance. At the postsecondary level, twenty-nine standards were reported. The most frequently reported standards for advanced language performance at the secondary level were gains-based (40%). The most frequently reported standards for advanced reading performance at the postsecondary level were criterion-based (31%).

Table 64

Standards for Secondary and Postsecondary Mathematics Performance

Mathematics Performance	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Basic				
Criterion-based standard	14	25	12	30
Norm-based standard	13	23	7	17
Gains-based standard	21	38	9	23
Not determined/not indicated	8	14	12	30
Advanced				
Criterion-based standard	12	23	9	31
Norm-based standard	11	21	5	17
Gains-based standard	21	40	7	24
Not determined/not indicated	8	15	8	28

Science

Nineteen states at the secondary level and eight states at the postsecondary level assessed basic science skill (see Table 1 and Table 32). Table 65 portrays information concerning the kinds of standards used by the states for basic and advanced science skill. Twenty-six standards were developed for secondary basic science performance. At the postsecondary level, eight standards were reported. For basic science performance, the most frequently reported standards at the secondary level were gains-based (37%) and criterion-based (37%). Fifty percent of postsecondary standards were gains-based, the most frequently reported kind of standard.

Twenty-two states at the secondary level and eight states at the postsecondary level assessed advanced science skill (see Table 1 and Table 32). Twenty-eight standards were developed for secondary advanced science performance. At the postsecondary level, eight standards were reported. The most frequently reported standards for advanced science performance at the secondary level were gains-based (40%). The most frequently reported standards for advanced science performance at the postsecondary level were gains-based (38%). Fifty percent of the standards at the postsecondary level were not determined or not indicated.

Table 65

Standards for Secondary and Postsecondary Science Performance

Science Performance	Secondary		Post-secondary	
	f	%	f	%
Basic				
Criterion-based standard	10	37	0	0
Norm-based standard	4	15	1	12
Gains-based standard	10	37	4	50
Not determined/not indicated	3	11	3	38
Advanced				
Criterion-based standard	10	36	0	0
Norm-based standard	2	7	1	12
Gains-based standard	11	40	3	38
Not determined/not indicated	5	17	4	50

Other Academic Performance

Twenty-four states at the secondary level and twenty-seven states at the postsecondary level assessed other basic academic performance (see Table 1 and Table 32). Table 66 displays information concerning the kind of standard used by the states for other basic and advanced academic performance. Thirty-two standards were developed for secondary other basic academic performance. At the postsecondary level, twenty-seven standards were reported. For other basic academic performance, the most frequently reported standards at the secondary level were criterion-based (41%). Thirty-three percent of postsecondary standards were criterion-based, the most frequently reported kind of standard.

Twenty-three states at the secondary level and twenty-four states at the postsecondary level assessed other advanced academic performance. Twenty-nine standards were developed for secondary other advanced academic performance. At the postsecondary level, twenty-four standards were reported. The most frequently reported standards for other advanced academic performance at the secondary level were gains-based (34%). The most frequently reported standards for other advanced academic performance at the postsecondary level were criterion-based (37%).

Table 66

Standards for Secondary and Postsecondary Other Academic Performance

Other Academic Performance	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Basic				
Criterion-based standard	13	41	9	33
Norm-based standard	5	16	3	11
Gains-based standard	8	25	5	19
Not determined/not indicated	6	18	10	37
Advanced				
Criterion-based standard	8	27	9	37
Norm-based standard	4	14	2	8
Gains-based standard	10	34	5	21
Not determined/not indicated	7	24	8	33

Other Performance

In addition to developing standards for academic skills, states reported standards that were developed for competency attainment and work skill attainment. Information regarding the kinds of standards developed for these measures of other performance is contained in this section.

Competency Attainment

Twenty-four states at the secondary level and eighteen states at the postsecondary level assessed competency attainment (see Table 22 and Table 53). Table 67 contains information concerning the kinds of standards used by the states for assessing competency attainment. Thirty-seven standards were developed for secondary competency attainment. At the postsecondary level, twenty-six standards were developed. The most frequently reported standards at the secondary level were criterion-based (62%). Fifty-eight percent of postsecondary standards were criterion-based, the most frequently reported kind of standard.

Table 67

Standards for Secondary and Postsecondary Competency Attainment

Competency Attainment	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Criterion-based standard	23	62	15	58
Norm-based standard	0	0	0	0
Gains-based standard	1	3	1	4
Not determined not/indicated	13	35	10	38

Work Skill Attainment

Thirty-nine states at the secondary level and thirty-four states at the postsecondary level assessed work skill attainment (see Table 22 and Table 53). Table 68 displays information concerning the kinds of standards used by the states for assessing work skill attainment. Fifty-two standards were developed for secondary work skill attainment. At the postsecondary level, thirty-nine standards were developed. The most frequently reported standards at the secondary level were also criterion-based (65%). Fifty-nine percent of postsecondary standards were criterion-based, the most frequently reported kind of standard.

Table 68

Standards for Secondary and Postsecondary Work Skill Attainment

Work Skill Attainment	Secondary f	Secondary %	Post-secondary f	Post-secondary %
Criterion based standard	34	65	23	59
Norm-based standard	1	2	1	3
Gain-based standard	6	12	2	5
Not determined/not indicated	11	21	13	33

CONCLUSIONS

Although some states chose to assess both basic and advanced academics with the same system of performance measures and standards, sixteen states at the secondary level and nineteen states at the postsecondary level did develop separate systems for assessing basic and advanced academic skills. The type of assessment techniques used for assessing basic skills differed from those used in assessing advanced skills in those states that approved separate systems of performance measures and standards for basic and advanced academic skills. For example, in the assessment of secondary academic skills, high school proficiency exams were a commonly used technique for assessing basic academics, but less frequently used for advanced academics. Other techniques, such as portfolios and course/program completion were used more frequently to assess advanced academics than for basic academics.

A number of nationally recognized instruments, such as the Iowa Test of Basic Skills were used to assess secondary basic academic skill in about one-third of the states: however, there was no consensus among the states on the type of nationally recognized instrument reported, eleven different instruments were approved for use in assessing basic academic skills by the states. Further, nationally recognized instruments were not the most popular method for assessing academic skill. About two-thirds of the states at the secondary level were using something other than nationally recognized techniques for assessing academic skills.

If a gains-based standard was selected by a state as a standard for academic performance, local selected or nationally recognized techniques were favored over the use of state-developed assessment techniques. Using reading as an example, gains-based standards were the most popular type of standard to be used with basic reading performance, followed by percent of students passing. For advanced academics, gains-based standards were the most used, with course/program completion being the next most frequently used type of standard.

Almost one-half of the states chose to develop a state wide instrument for assessing academic skills or use an existing high school proficiency exam. However, for assessing advanced academic skills, a wide variety of assessment techniques were reported.

Course/program completion was selected in a number of states as a standard of academic achievement. No information is currently available on a national basis concerning the local requirements for course/program completion or on the makeup of the specific courses and programs.

Of those measures and standards specifically listed in Perkins 1990, competency attainment was selected by the fewest number of states. The achievement of competency was the standard most reported for competency attainment and, for the most part, states left it up to the local agencies to devise an assessment technique. This was probably due to the lack of existing instruments for assessing competency attainment. It appeared that states had difficulty in defining competency attainment. There was very little use of nationally recognized techniques for competency attainment and competency attainment was assessed by course/program completion in a large number of states.

Work skill attainment was predominately assessed by local selected or developed techniques at both the secondary and postsecondary level. The standard of choice for work skill attainment was a passing score on some type of an instrument designed to assess work skills. At both the secondary and postsecondary level, there was little use of nationally recognized techniques or licensure for work skill attainment.

The most frequently reported standard for secondary program completion was 80-90%. The average graduation rate of vocational students compared to the average for the total school population was the most frequently reported standard for the measure of high school graduation, using a standard of a 90-95% graduation rate. These findings tended to support the notion that states were requiring vocational students to perform at levels similar to the general high school population, in terms of school completion.

For placement at the secondary level, the standards reported were higher for any placement than for related placement. This finding may be an indicator of the growing recognition among many that job-specific training is not as an important component of high school vocational education as a more general approach to employment training.

The most frequently reported standards concerning service to special populations for both secondary and postsecondary programs were based on comparisons between numbers of special populations students enrolled and completing vocational programs and the numbers in the general school population. There were a variety of standards for assessing gender equity at both the secondary or postsecondary level.

For the most part, state developed techniques were not used for assessing postsecondary academic performance. Local selected and developed techniques and course/program completion were the top choices for assessing academic skills. There was no consensus among the states as to the types of standards to be used for assessing academic skills. The setting of standards was left to local agencies in a substantial number of states.

Local selected and course/program completion were the most popular techniques for assessing competency attainment at the postsecondary level. Percent of students attaining competency was the most popular standard.

Although licensure was reported in use more often in assessing work skill attainment in postsecondary programs then with secondary programs, local selected techniques were selected more often for postsecondary work skill attainment. In addition, the percent of students attaining passing scores on local developed or selected instruments was the most frequently reported standard for postsecondary work skill attainment. There appeared to be wide variability across the states as to what was an acceptable standard for work skill attainment.

There was also wide variability in the level of standards set for post secondary course/program completion. Course/program completion was the most frequently reported measure of other performance, but there appeared to be little consensus on an appropriate level of completion.

Related placement rates tended to be set at higher levels for postsecondary than for secondary programs. This could possibly be an indication that states were accepting the idea that highly specialized training was more appropriate at the postsecondary level, while allowing for more generalized training at the secondary level.

Gain scores were more prevalent as a standard for secondary advanced reading than for basic reading skill or postsecondary advanced reading. More standards were not determined or not indicated at the post secondary level than at the secondary level. Criterion and norm based standards were used in approximately the same number of cases for secondary, and postsecondary advanced and basic reading.

RECOMMENDATIONS

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 required each state to establish a system of performance measures and standards to use in the evaluation of vocational education programs. This study was conducted since little information was available on the techniques and standards used by states in implementing these systems. The recommendations are based on the previous findings and conclusions and include the following:

1. Information was not gathered concerning the rationale for adoption of standards. Research should be conducted to determine the rationale for selection of standards and the compatibility of state approved standards with business and industry standards.

2. Research should be conducted concerning the validity and reliability of state and local developed assessment techniques/instruments.

3. Future legislation should clearly define competency attainment.

4. Further development of instruments designed to assess work skill attainment and competency attainment should take place.

5. Information is needed on the relationship between student outcomes on academic instruments developed specifically for vocational students and student outcomes on high school proficiency exams.

6. A compendium of state and local developed assessment techniques should be developed for vocational educators to use in selecting instruments and procedures.

7. Further research should be conducted on the effectiveness of systems of standards and measures in achieving desired outcomes before any additional attempt is made in standardizing the measures and standards across the nation or in establishing levels of performance standards.

The requirement for states to establish systems of performance measures and standards represented a continuation of the emphasis on evaluation that has been present in vocational education legislation for many years. This study reports on the state systems that were in place as of March, 1993. This information is provided in an effort to assist those who are responsible for the continued development and implementation of these measures and standards. These state systems should be monitored for changes as they are developed.

REFERENCES

Bragg, D. D., and Harmon, C. M. (1992). Perspectives on assessment policy and practice. in D. Bragg (ed). Alternative approaches to outcomes assessment for postsecondary vocational education. Berkeley, CA: National Center for Research in Vocational Education.

Butler, E. P. (1988). The search for the bottom line in vocational training: What lessons are offered by the Job Training Partnership Act. Berkeley, CA: MPR Associates.

Carl D. Perkins Vocational and Applied Technology Act Amendments of 1990 (Public Law 100-392). (1990). Washington, DC: U. S. Congress.

Center for Law and Education. (1990). Guide to designing systems of standards and measures for evaluating the performance of vocational education programs. Cambridge, MA: Author.

Dickinson, K. P., West, R. W., Kogan, D. J., Drury, D. A., Franks, M. S., Schlichtmann, L., and Vencill, M. (1988). Evaluation of the effects of JTPA performance standards on clients, services, and costs. Washington, DC: National Commission for Employment Policy.

Federal Register. (August 14, 1992). State vocational and applied technology programs and national discretionary programs of vocational education; final rule. (34 CFR Part 400, et al.) Washington, DC: U.S. Department of Education.

Hoachlander, E. G. and Rahn, M. L. (1992). Performance measures and standards for vocational education: 1991 survey results. Berkeley, CA: National Center for Research in Vocational Education.

Hoachlander, E. G., Levesque, K., and Rahn, M. L. (1992). Accountability for vocational education: A practitioners guide. Berkeley, CA: National Center for Research in Vocational Education.

McCaslin N. L. and Headley W. S. (1993). A National study of approved state systems of performance measures and standards for vocational education. Columbus, OH: The Ohio State University.

Office of Technology Assessment. (1989). Performance standards for secondary school vocational education. Washington, DC: Author.

Office of Technology Assessment. (1992). Testing in American schools: Asking the right questions. Washington, DC: Author.

Stecher, B. M. and Hanser, L. M. (1992). Local accountability in vocational education: a theoretical model and its limitations in practice. Berkeley, CA: National Center for Research in Vocational Education.

Whichard, J. A. and Cobb, R. B. (1993). Assessment alternatives for students in vocational education. Fort Collins, Colorado: Colorado State University.

APPENDIX A

November 25, 1992

1~

Dear 2~,

The implementation of the Carl D. Perkins Act of 1990 has required states to change how their students are being assessed and programs are being evaluated. The statewide system of performance measures and standards was to be established by September, 1992. Many states also have revised their procedures for assessing program quality. Information on these recently approved standards and measures and the criteria used to assess program quality have not been summarized on a national basis.

We are gathering this information from each state. We need your help in providing the following:

- A list of the performance standards and measures for secondary and postsecondary vocational education that have been approved by your state board (Section 115).
- The procedures you will use to make local modifications based on economic, geographic, or demographic factors, or the characteristics of the population to be served (Section 115).
- Manuals, procedures, and criteria used to assess local program quality Section (116).
- The name of the individual(s) responsible for secondary and/or postsecondary vocational education evaluation in each state. A one-page form has been included to provide us with this information.

This information would be especially valuable in developing high quality vocational education programs and contributing to the study of vocational education's effectiveness. It would also be important in preparing new policies and legislation for vocational education.

We need to receive this information by December 1, 1992. Thank you for your assistance in providing us with this information. We will provide you with a summary of the information we collect.

Sincerely,

N.L. McCaslin
Associate Professor

William S. Headley
Graduate Research Associate

APPENDIX B

March 11, 1993

1~

Dear 2~

Thank you for sending us the information on the statewide system of measures and standards required by The Carl D. Perkins Act of 1990. In order to ensure the accuracy of the information we will be reporting, we are requesting that you review our findings for your state.

Please check the summary sheet for measures adopted for use in secondary and post secondary programs. Feel free to make any necessary additions, deletions, or corrections. If the summary is correct, simply write "OK" on the summary sheet and return it to us. The enclosed instruction sheet will provide details to assist in the review of these materials. We would appreciate any comments concerning this summary. A stamped, addressed envelope is provided for your use in returning the summary forms.

The final summary of the findings for all the states will be published and made available to you as soon as we have received the returned and corrected summary sheets. Therefore, we need to have this information by March 29, 1993. Don't hesitate to call if you have any questions. Thank you for your assistance in reviewing these materials.

Sincerely,

N. L. McCaslin
Associate Professor

William S. Headley
Graduate Research Associate

Basic Academic Skill					Advanced Academic Skill				
Reading	Language	Math	Science	Other	Reading	Language	Math	Science	Other

Other Academic Measures					
Determined by program	Social Studies	Course Work	Critical Thinking	Problem Solving	Personal Qualities

Competency	Work Skill Attainment	Retention/Completion	Placement	
			Related	Any

Special Populations					Other	
Enrollment	Retention	Placement	GPA	Gender Mix	Enrollment	Collaboration

Other					
Student Satisfaction	Career Plan	Guidance Services	Program Features	Prior Information	Earnings

Instruction Sheet

1. Read over the attached summary sheet. An "x" has been placed under the headings indicating your state has a measure in this area. Blank spaces indicate no measure in this area.

2. Please cross off any incorrect "x" and add any that should be present.

3. Some states are phasing in measures, the measure is listed on the summary sheet even if it is to be phased in at a later date.

4. The notes below will help in the interpretation of the headings.

   a. If your state shows an * in the academic skill area, we interpreted your system as using the same set of measures for both basic and advanced academic skill.

   b. Determined by program means that each vocational program area (e.g. agriculture, marketing, business) in the state will determine the specific academic measures to be used.

   c. Social studies includes citizenship, American history, etc.

   d. Under Placement, both Related and Any include military service and further training or education.

   e. Under Special Populations and Other, Enrollment refers to measures of numbers of students in programs or ratios of students compared to other groups of students, etc.

   f. Program Features refers to measures of curriculum, teacher, or other programmatic measures.

5. If the summary is correct, simply write "OK" on the summary sheet and return it to us.

6. Please return the summary forms in the enclosed stamped, addressed envelope.

7. Your comments are appreciated. If you need additional clarification or desire additional information, call Scot Headley at 614-292-6321.

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